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The Canadian
Medical Association Journal

Vol. VII. AUGUST, 1917 No. 8

PAST AND PRESENT

ADDRESS IN SURGERY

By Francis J. Shepherd, M.D., LL.D., F.R.C.S.

WHEN asked to deliver the address in surgery to the Canadian Medical Association, my first impulse was to refuse, for I had for some three years given up surgical practice and felt the task ought to be undertaken by some younger man in active work who was more *au courant* with the surgical problems of the day. However, I was overruled, and not wishing at this time of great patriotic endeavour to relegate the office to outsiders, I consented to do my best and address you to-day.

It has always been my opinion that our Canadian national societies should, at their annual meetings, take stock of the knowledge acquired in the special departments of science they represent, so that the papers read should be an index of the progress of that science the society is interested in. Now this applies to Medicine as well as to other departments of science and I contend that our meetings should not be made use of for strangers to display their knowledge and cleverness, and often to play to the gallery, but that we should rely on our own members for papers and contributions and so be an index of our own vitality. We are passing out of the colonial and dependent stage and are becoming one of the sister nations of the great empire of Great and Greater Britain.

In 1874–5, when I was in Vienna and filling up my papers for the *Politzei*, I wrote in "Dominion of Canada" as the country I hailed from, but so little was the country known at that time that my papers were returned with the query: "Was it not the Island of Candia I meant?" I said, "No, it was Canada," and it took

Delivered before the Canadian Medical Association at the forty-eighth annual meeting, Montreal, June 15th, 1917.

three months before an investigation satisfied the authorities that there was such a country as Canada and I was given leave to reside in Vienna. Again, when in London as a student, placards were posted on the church doors by order of the Privy Council, stating that information had been received from Ontario, the *Capital of Canada*, that the potato bug had arrived and warning the people of England against its introduction into that country.

Now in the fiftieth year of the formation of our nation how different is the picture! Since the war began the name "Canadian" has quite a distinctive significance apart from "American". How often have Canadians and Americans been synonymous terms, even with our fellow subjects in Great Britain. But now since the deeds of our soldiers have been so illustrious on the battle fields of Flanders and France, all the world knows the "Canadians" and never again will we be confused with our neighbours across the line. Not only have the Canadian soldiers given us a distinctive place in the eyes of the world, but our Canadian hospitals and ambulances and Canadian surgeons and physicians in France by their splendid work have also written their names on the tablets of history and have become a separate entity. We are not now classified as Americans, but as Canadians. This is a very great advantage to all of us and will in future make us more self reliant and make us believe more in ourselves and tend to form a school of medicine of which we can all be proud, and teach us to draw less heavily on the knowledge furnished by others, not Canadians. Now in this connexion, why should we not have our Royal Colleges of Surgeons and Physicians affiliated with those of Great Britain which we respect and reverence so much. Why should we be dependent on the Americans for our titles as surgeons or physicians? Why should not we have F.R.C.S.&.P. of Canada after our names? Some years ago this Association nominated a committee to look into this matter, but like so many other committees it has never reported.

My view of surgery extends back for many years, to pre-antiseptic days, and I esteem it a great privilege that I saw the birth, growth, and triumph of the principles of antiseptic surgery. It has been a wonderful experience and no one who has not lived through this period can fully appreciate the vast changes and advantages it introduced to the great benefit of all mankind. The only analagous epoch-making discovery was that of anæsthesia. Pre-anæsthetic and anæsthetic times were comparable somewhat to pre-antiseptic and antiseptic times. In my student days the

older surgeons were all of the pre-anæsthetic period and one was amazed at their dexterity and celerity in operating, for time was an object when they learned to operate. Of course the range of operations was limited to amputations, lithotomy (lateral), the removal of external tumours, the ligature of arteries, and occasionally the trephining of depressed fractures of the skull. Not only were these men most skilful and rapid operators but they were first-class practical anatomists and were never uncertain in the use of the knife: the timid and ignorant operator was eliminated by the conditions which then existed.

How different is the surgery of to-day; no cavity is free from the successful intrusion of the surgeon and many purely medical regions have been transferred to him entirely. What rapid strides surgery has made and how difficult it is for the ordinary man to keep abreast of its rapid progress! No one can now, as formerly, be efficient in the whole range of surgery, so there are many subdivisions and specialties. This does not always make for the broadening of the surgeon but it makes him perhaps more efficient in special lines. I see a large book has been published lately on the diseases of the umbilicus.

The advent of *x*-rays was another most important and epoch-making discovery, and how useful it has been in the present war!

This war has brought antiseptic as contrasted with aseptic surgery to its own again, and how much more efficient has the army medical service been as compared with previous wars, even though in this great Armageddon high explosive shells, liquid fire, and poisonous gas are used! How complete the arrangements for removing the wounded, getting them rapidly to operating centres, etc., etc. I have of late seen several cases of multiple wounds of the intestines from shrapnel returned to the military convalescent hospitals here in good health and able to do ordinary work. It is remarkable what comparatively good results have been obtained in the field of abdominal surgery. For a good many years it has been the custom of surgeons in civil hospitals to operate without delay in penetrating wounds of the abdomen, but until the present war gunshot wounds of the abdomen received in the field of battle were treated expectantly; now army surgeons are advocating, where possible, immediate operation. Dr. Abadie has published a book on this subject called "Les Blessures de l'Abdomen", and has collected 713 cases treated by expectant treatment with 77 per cent. of a mortality, and 688 cases treated by operation with a mortality of 64 per cent. He advocates early laparotomy in penetrating wounds of the abdomen

and that operating facilities should be as close to the trenches as possible, suggesting operating rooms on wheels which can be moved easily. He prefers chloroform as an anæsthetic and for four or five days that nothing be given by the mouth, but that four or five litres of fluid should be passed daily into the bowels by the drop method. He also advises that the patent should be kept under the influence of morphia.

In the March 10th number of the *British Medical Journal* there is a series of articles by army surgeons on penetrating wounds of the abdomen which is well worth reading and from the satisfactory results obtained in apparently desperate cases they deserve to be congratulated for their good work. In stomach wounds without other injuries, more than half recover if early operation is possible. In cases of uncomplicated wounds of the small intestines, seen early, the recoveries are often 100 per cent.; in other wounds of the intestines, suitable for operation, 30 per cent. recovered. These statistics agree with Major Archibald's experience as described in an article in a recent number of the *Journal of the Canadian Medical Association.* Wounds of the large intestine are more fatal owing to the greater risk of infection. On the whole, however, the chances of recovery after wounds of the abdominal hollow viscera are better than in cases of compound fracture of the thigh.

This is certainly a most encouraging report and means a great advance in the treatment of gunshot wounds of the abdomen. I have seen several cases of multiple gunshot wounds of the intestines as I said before, returned here to our military convalescent hospitals, which have been operated on successfully close to the front, and this is a great step forward, and although not so life-saving as the prevention of typhoid, yet shows the wonderful progress of battlefield surgery.

A method of disinfecting wounds has been devised by Carrel in which Dakin's solution, the hypochlorite of sodium, is used. The object of Carrel's method of disinfection is, of course, to render a wound sterile so that the antiseptic used comes in contact with every part of the wound, and "that the antiseptic is maintained in suitable concentration throughout the entire wound and that this constant strength is maintained for a prolonged period. If these conditions are fulfilled every wound will show its response to the treatment by the diminution and disappearance of its micro-organisms (Lyle). The wound should first be thoroughly disinfected and all shell fragments, clothing, dirt, etc., removed before the

apparatus devised by Carrel is used, so as to keep up a continuous application of the antiseptic. In the wounds treated by this method there is no redness, tenderness or induration at the edges; they heal rapidly, and on schedule time—for flesh wounds fourteen days, compound fractures twenty-eight to thirty days. The necessity of amputation for infection is abolished and suppuration disappears. Many patients have quite supple scars and the gravity of severe mutilations is so much reduced that men are returned to the front who otherwise would be crippled for life.

So you see antiseptics are coming into their own again, although the old antiseptics have not proved entirely satisfactory in septic wounds produced in this present war; for there is so much destruction of tissue and such deep infection that ordinary antiseptics do not seem to be sufficient. Of course free incision and the removal of foreign bodies are of great help, but some chemical is needed to cleanse the wounds and destroy germs. Most antiseptics, such as phenol, alcohol, Dakin's solution, hydrogen peroxide, iodine, etc., etc., while killing the bacteria destroy the cells and so prepare a nidus for flesh infection. Browning and his co-workers, Gulbransen, Kennaway and Thornton,* of the Bland-Sutton Institute, have shown that bactericidal substances must have a great potency against all organisms in the presence of proteid materials such as serum; it must be stimulating to granulations; it should have no deleterious effect upon phagocytosis, no irritant action on delicate tissues, such as mucus membranes, and no toxic effect on the most highly specialized cells. They found that in all known antiseptics the bactericidal potency in watery solutions is diminished when the medium is wholly or partially serum. They also found that a number of acridine dyes have an enhanced bactericidal power in the presence of serum; the compound diamino-methyl-acridinium chloride, which the authors call "flavine", is the best; twenty times more powerful than corrosive sublimate, and eight hundred more so than carbolic acid or chloramine under the same conditions. The tryphenylmethane compounds, especially brilliant green and crystal violet, are very active as regards cocci, but towards B. coli their bactericidal value is considerably lower than flavine. Flavine is much less detrimental to the process of phagocytosis and less harmful to the tissues than other substances, hence a much higher concentration can be employed without harming the tissues or interfering with the natural defensive mechanism, and it is more rapid in its action.

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*British Medical Journal, January 20th, 1917.

Brilliant green comes next in efficiency in these respects. No doubt many other antiseptics will be evolved before this war is over, of more value than those we have placed such reliance on in the past, and often used blindly without knowing how well or efficiently they acted. However, the last word has not yet been said on antiseptics.

These are not the only problems the war is helping us to solve: there are many others, such as, how to cope with the terrible gas gangrene which is at times so prevalent; the cause of shock, which has puzzled us for so many years, and about which there is such a diversity of opinion as to its nature and prevention. In war surgery what is most dreaded is shock, for until it is overcome the surgeon cannot successfully operate. H. H. Dale and P. P. Laidlaw, of the British Medical Research Committee, have lately been investigating this subject.* By injecting a poison called histamine profound shock is produced, profound fall in blood pressure and a loss of about one half the plasma of the blood in five minutes. This is due to the passage into the tissues and lymph spaces of all the constituents of blood plasma—in fact a large part of the blood disappears, the veins are empty and the capillaries have lost their tone; although the heart beats fairly strongly there is no pulsation in the arteries. Many causes produce like effects, such as the toxæmia from gas gangrene, bacillary dysentery; there the fluid is lost by excretion. Similarly shock is produced by intestinal obstruction, post operative shock, without hæmorrhage, extensive burns, etc. As to treatment—prevention is advocated. Hæmorrhage predisposes to shock, also fatigue, exposure and starvation. It is also suggested that free saline purgation before operation and abstinence from food and water may also predispose. Free supply of fluid by infusion of saline into the rectum or subcutaneous tissues must be undertaken before operation. The only drug of any use is pituitary extract, for it causes a prolonged and general contraction of the arterioles and so diminishes the total capacity of the circulatory system with the effect that deficient blood pressure is diminished. Adrenalin, the effect of which is very transitory, is objected to and intravenous injection of hypertonic saline is advocated, as used in cholera. The paper, of which I have given such a short summary, is well worth reading and brings us another step forward in solving the problem of the nature and prevention of shock.

All praise for the great work the surgeons and physicians are

British Medical Journal, March 24th, 1917.

doing at the front, and behind it! How self-sacrificing has been their work, and how many we know have given up their lives for the cause in the performance of their duty behind the firing line, attending the wounded and helping them at the risk of their own lives! Rewards are given to those who successfully escape the dreadful slaughter, but after all the best are often taken and where are their rewards? Merely in the memory of those they have left behind.

What good work the physicians have done in preventing typhoid, tetanus, etc.! The sanitary arrangements of all areas occupied by the British are almost perfect and the cleansing and drainage of villages occupied by them is wonderful to see.

On this side of the water we also have to do war work and those wounded and invalided soldiers who are weekly being sent over to us give us cause for much thought. Not only have large hospitals to be provided for them, but we have to act as foster-fathers to those soldiers who have become more or less incapacitated, and to endeavour by treatment to restore them as far as possible to normal conditions, and to reëducate them so that they may earn a living and not be a burden to the community. This the Military Hospitals Commission is doing as far as its opportunities and equipment enables it to do. Vocational training and reëducation will go on for some time after the war so that Canada will for some years be reminded of the great struggle by the presence among us of many of its victims.

Many strange things happen in this vocational training and reëducation; many have discovered that they have tendencies and predilections and ability for certain forms of work which were hitherto unknown to them. In one case a poorly educated French Canadian, who had been a plasterer, lost a leg and whilst attending the educational classes developed a wonderful talent for drafting and he is now employed in a large establishment as a draftsman at a very respectable salary. Carpenters have been developed, also mechanics, who previously had no notion of their tendency in that direction. Many who could read and write with difficulty have become proficient and others in addition have taken to arithmetic and book-keeping. Others, less intelligent, have been satisfied to learn to be time-keepers, etc.

The Military Hospitals Commission have established in Toronto an artificial leg factory where the lightest and best types of leg can be made and fitted; in consequence our legless soldiers are sent to Toronto to be properly fitted with artificial limbs and

whilst there, and waiting, they are given vocational training in any branch of work they have an aptitude for, which work they can continue after their discharge. The government has provided that whilst discharged men are learning a trade their families are provided for until their work becomes remunerative.*

I see that in the early part of this year there was a great controversy in the *British Medical Journal* about the relationship between the surgeon and the physician; that the surgeon was overpaid in his mere mechanical or handicraft work, whilst the physician, who looked down on hand work, for the superior brain power put into his diagnosis and opinion, was very poorly paid. Sir Clifford Allbutt, in an interesting letter, points out that down to the 12th Century the physician and surgeon was combined in one person, instancing Hippocrates, the Great Alexandrians, Galen, and the great school of Bologna. In the next century the division between surgery and internal medicine became complete when the University of Paris excluded from its degree all who worked with their hands; then it was, as Burdon Sanderson said, that "Medicine lost its scientific arm". This example of Paris blighted other universities, such as Oxford, Cambridge, Montpelier, and Toulouse. As the writer of the letter says: "Thus medicine obliterated herself and dried into the husks which were mocked at by Petrarch, Rabelais and Molière." Even forty or fifty years ago, or later, no surgery or surgical certificates were required for the M.D. degree of Cambridge. It is absurd to separate entirely these two great branches of medicine and every surgeon ought to be somewhat of a physician and the physician somewhat of a surgeon; or at least know enough to call in a surgeon in time. As a rule surgeons and physicians work harmoniously together and should be like man and wife, each depending somewhat on the other and determined to bear and forebear. An old saw says:

> A single doctor like a sculler plies,
> The patient lingers and then slowly dies.
> But two physicians like a pair of oars,
> Shall waft him swiftly to the Stygian shores.

If there had been a surgeon and a physician in this consultation the result above referred to would probably not have happened.

Now as to the fees of surgeons. Many people think they are

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*In the near future the Commission intend to establish other artificial limb factories in the other great centres for at present the Toronto establishment cannot keep up with the demand.

sometimes exorbitant and it seems to me that in some cases in the country to the south the surgeon has been out for spoil. Fees as large as $25,000 and more have been charged, basing the charge on the income of the patient. Now, I have always felt that this was commercializing the profession and that no operation was worth such an amount, a fair and reasonable fee up to $1,000 for the rich and a graduation downwards for those less able to pay seems to me fair, and I personally have no regrets in my past career as to excessive charges. I know of cases where the patient, or the husband, has had to sell household goods to pay the surgeon. Such things should not be and surgeons before long will have, if they have not already acquired it, the reputation of lawyers. A lawyer is described by Lord Brougham as, "A legal gentleman who rescues your estate from your enemies and keeps it for himself." I am well aware that many times the surgeon is underpaid, or not paid at all, but that is no excuse for the use of Robin Hood methods.

The multiplication of medical journals, good, bad, and indifferent, is another feature of development in the last forty years. Formerly nobody wrote unless they had something to say, but now every man is solicited to write and cannot apparently succeed without much advertising. Undigested articles see light, and crude theories are enunciated as truths. Work half done or badly done is reported for fear some one will get ahead of them. The consequence is there is a mass of purely ephemeral literature which does no good to anybody, except perhaps temporarily to the writer. A new remedy is discovered, everybody rushes into print and recites their experiences before the remedy has had time to be tested. Douglas Jerrold said once to a young man who burned to have himself in print: "Be advised by me young man, don't take down the shutters until there is something in the window." How many are those who have anything to show in the window after the shutters are taken down? "Oh that mine enemy would write a book," said the Psalmist. Now every medical man who is anybody does write a book, and although it may be condemned by a few, if well advertised it is read by the many. I heard a medical publisher say once that he did not care who wrote the book if he published it he could sell it, not on its merits but on his fulsome and oft repeated recommendation. The younger the practitioner as a rule the more he writes. Encyclopædias and systems are written or compiled by very young men having plenty of time, but as they get older they write less, but what they write is more worth reading, and by experience they learn how little they formerly knew, though posing

as authorities. In time they become more critical of their own work and hence produce less. However, this premature work was not without benefit for the training they got and the amount they learned in preparing articles did them much good and prepared them for the riper work they produced later on.

Before closing this rather fragmentary address, I should like to say a few words on a subject about which I wrote many years ago, viz: Medical and Surgery quackery. A new phase has opened up during the past few years,—the desire on the part of the quacks to be legalized and the wish of many members of the various legislatures to aid them in this object. In Ontario, irregulars, such as osteopaths, chiropractors, etc., are trying to get an Act passed to legalize them and put them on a par with the regular profession and are finding support amongst supposedly educated and cultivated people. A commission, appointed over a year ago, has been investigating their claims and those of the regular profession, with no definite result as yet. That a commission was appointed shows the tendency of the times. It is extraordinary; notwithstanding all our education and supposed higher civilization, how quackery flourishes. In fact it is the upper classes of society who patronize quacks. "Imagination," says Bacon, "is next akin to a miracle working faith," for imaginary diseases are cured by the imagination. Man is a dupable animal; there is scarcely any one who may not, like a trout, be taken with tickling (Southey). The cures are mostly in those cases where no organic change exists, but that they have taught something I won't deny, for in cases of stiff joints with fibrous ankylosis or fibrous adhesions after traumatism, they often do good, but in many cases when serious lesions exist great harm can be done. I saw one case of ulcer of the stomach which had been rubbed for some time by an osteopath and who at last becoming alarmed at the condition of the patient sent him to a surgeon for operation. A perforation of the stomach was found and there was general peritonitis, accelerated, no doubt, by the vigorous treatment of the osteopath. The patient of course died. It is curious how now-a-days (although there have been bone-setters from time immemorial) that the modern quack treats mostly surgical cases; replaces a supposed bone out of place, reduces a dislocated spine, or rubs out a tumour—all more or less surgical. Now if such men are legalized, as they are in some states of the Union, then there is no further use for carrying on the work of various licensing bodies called colleges of physicians and surgeons. Let us have free trade in medicine and the best man will always

come out on top. There is one notable instance where the bone-setter put the profession in the right way—the reduction of the dislocated hip by manipulation, which was practised for generations by a family living in one of the New England states. They transmitted the secret from father to son and Dr. H. R. Bigelow of Boston, hearing this, investigated and found that there was something in it and by a series of dissections of the hip joint proved that the resistance to reduction was caused by the tension of the ilio-femoral ligament and when this was relaxed by flexion and the limb rotated, the bone slipped into place. This much we are indebted to the bone-setter who accidentally found out this fact without knowing the reason. They have also taught us that the manipulation of joints after injury is better than the enforcement of rigidity, which was advised by the older surgeons.

There seems to be almost in every body a vein of superstition and credulity against which argument is useless and which education does not seem to eradicate. Perhaps what Oliver Wendell Homes said about these people is the best advice: "Ephraim is wedded to his idols, let him alone." Another has said many years ago: "The final, though distant extinction of quackery is to be hoped for, it forms a fragment of the final triumph of reason and virtue which is the secret consolation of every philanthropist."

THE Sixth Annual Congress of the Canadian Public Health Association will be held in Ottawa on September 27th and 28th, 1917. The meeting of the Canadian Association for the Prevention of Tuberculosis will also be held in Ottawa on September 26th, 1917.

THE MODERN CONCEPTION OF PUBLIC HEALTH ADMINISTRATION AND ITS NATIONAL IMPORTANCE

By Charles J. Hastings, L.R.C.P.I., M.D.

Medical Officer of Health, Toronto

THE most appalling feature of the present international struggle for the principles of civilization is the great sacrifice of human life—the sacrifice of the best of the man-power of all nations. Here I might ask and do ask—in what respect does this differ from the sacrifice of human life and human efficiency through preventable diseases? The Kaiser and Junkerdom have made God the author of this international struggle and have chosen Him as their junior partner. On the other hand, superstition, doctrinal delusion, and incredulity have for centuries been making God the author of disease, and have blamed Him for all the disastrous results of its ravages. However, the principles of the democracy for which we are fighting, which in this connexion means the general diffusion of knowledge, bringing it within the reach of the people, places the blame where it belongs. The democratizing of the knowledge we possess as regards the cause of disease and the ways and means by which it is transmitted, is sweeping aside these superstitions and doctrinal delusions, and is transferring the blame from Providence to our failure efficiently to apply the knowledge we now possess. Incidentally we are giving man a truer conception of God.

In the various nations engaged in this war, in times of peace, over 6,500,000 die annually from preventable diseases. There have been fewer than 7,000,000 killed in action on all sides since the outbreak of war. Obviously then, all the battles in the interest of humanity and the interests of nations are not fought on the firing line. The perennial warfare waged against the invisible foe is as important—if not more so—than that now waged against those who are threatening the destruction of the very principles of civilization.

Public Address in State Medicine, delivered at the forty-eighth annual meeting of the Canadian Medical Association, held in Montreal, June 13th, 14th and 15th, 1917.

Early History of Public Health Administration

In order properly to appreciate the advances in public health administration during the past decade, one requires to review briefly the history of preventive medicine. As far back as history carries us, and in fact, in prehistoric times, we find evidence of those in authority among the Egyptians, Greeks, and Romans having had some conception of the necessity for sanitary laws. One cannot run over the wonderful code of Hammurabi, king of Babylon, compiled 2,200 years before Christ, and which was unearthed in the Acropolis Mound at Susa in 1902, without feeling that he, too, had a full appreciation of the importance of hygiene. However, we have no record of these conceptions of the necessity for sanitation having been codified until Moses handed out his sanitary regulations about the beginning of the sixteenth century B.C. The three (3) cardinal principles of this sanitary code were—personal cleanliness, isolation of the sick, and the efficient safeguarding of the food supply. These sanitary laws were excellent and were, for the most part, well administered, especially as regards personal cleanliness and the care of the food. It is more than probable that the comparative immunity of the Hebrews from epidemic diseases and plagues, as compared with the early Christians, Greeks, and Romans, was, in a large measure, due to personal cleanliness. This was particularly true of the Pharisees, who, as a religious rite, carefully washed their hands before partaking of food, believing as they did, that the eating of food with unclean hands defiled a man. They also emphasized the importance of washing all cups, pots, and brazen vessels, tables, etc. These hygienic principles were religiously carried out. Medical health officers were appointed in Rome in 495 B.C. They were placed in charge of districts and the sanitary measures carried out under their supervision were, in many respects, commendable. Tradition tells us that the Cloaca Maxima was constructed under the direction of King Tarquinius Priscus, 616 to 578 B.C., and is still used in the drainage of Rome and receives many branches between the Capitoline, Palatine, and other Hills. It is formed of three consecutive layers of enormous stone, one above the other, in concentric rows. The inside measurement is, approximately, 13 feet square. These, with the aqueducts, three of which are still in use, are marvels of engineering skill. However, the superstition and doctrinal delusions of the early ages, that disease and pestilence were a direct visitation of Divine wrath, caused them to turn their attention from prevention and preventive measures to

the building of hospitals, alms-houses, etc. It was this, no doubt, that Ruskin had in mind when he said that "any regulation which tends to improve the health of the masses is viewed by them as an unwarranted interference with their vested rights in inevitable disease and death." For these delusions they have surely paid the penalty in the early and middle ages, and even down to quite recent years, blaming Providence for diseases for which they, themselves, through ignorance, superstition, and incredulity, were responsible. It would be difficult to conceive of any greater reflection on our intelligence than retaining in our burial service, "The Lord giveth and the Lord taketh away." Is this not libelous on the Almighty? We are responsible in failing in our duty properly to apply the knowledge we possess of the cause of disease and how it is transmitted. For instance, Toronto's death rate from typhoid fever in 1910 was 40·8 per 100,000, and in 1915 it was reduced to 1·9. This was brought about for the most part by safeguarding our water and milk supply. Furthermore, since the organization of our division of infant and child hygiene, in 1914, our infant mortality has been reduced one third, that is, we had 676 fewer babies die than would have died, if the death rate previous to 1914 had continued. Toronto's general death rate in 1910, was 14 per 1,000—in 1915 it was 11 per 1,000, which meant a saving to the city of 1,102 lives. So that the Lord would have been blamed for these 1,102 that would have died, if Toronto had not adopted the necessary preventive measures. Let us place the blame where it belongs and remove many of the obstacles to efficient health administration.

It would seem as if David, king of Isreal, foresaw great possibilities in the sanitary laws of Moses. In the Psalms, of which he is credited with having written part, at least, he, with prophetic vision, must have been peering into the future of preventive medicine when he said: "Thou shalt not be afraid for the terror by night, nor for the destruction that wasteth at noonday, nor for the pestilence that walketh in darkness." One cannot but be impressed with the apparent conception that the writer must have had of the control of malaria and yellow fever, "the terror by night" (through the anopheles, and the stegomyia mosquito); the control of venereal diseases, "the pestilence that walketh in darkness;" and the control of the wasting diseases of middle life in "the destruction that wasteth at noonday". Malaria was comparatively common in Italy as early as the Second and Third Centuries and was probably brought over by the soldiers or the Carthagenian mercenaries during the Second and Third Punic Wars. At that time the Roman Em-

pire aspired to extend to the most remote parts of the earth but disease and pestilence or plague reduced the population by one quarter to one half. The same was true of Greece, Athens, and other cities of Europe and Asia. It was, obviously, not the Gauls or Vandals that conquered Rome but the plague and malaria.

Rome had not realized that public health was a national problem and was the foundation on which rested the strength of the nation. It is interesting to note that, after the outbreak of the plague in different countries, in pratically every instance certain conditions were found to be present, such as an inferior quality and an insufficient quantity of food, filthy environments and decomposing animal and vegetable matter about the homes; in brief, there were associated with poverty and all that attends it, environments most favourable for rodents, vermin and insects.

Modern Conception of how Diseases are Transmitted

From the first outbreak of the plague down through the middle ages, and, in fact, until recent date, people were as unsuspicious of rats, ground squirrels, fleas, flies, or other animals or insects playing any rôle in the transmission of plague as they were of the anopheles mosquito playing any rôle in the transmission of malaria or the stegomyia mosquito in the transmission of yellow fever; or the body louse of typhus fever. In fact, it is only within recent years that we can boast of this knowledge. Without any knowledge whatever of bacteriology, administrators of public health were floundering without rudder or compass. The abating of nuisances, the disposal of sewage, the draining of the homes and the more or less effective quarantine of communicable diseases constituted the activities of public health administration.

The Germ Theory and Germ Origin of Disease

The germ theory of disease dates back at least to the Second Century, though it is only a few decades since this theory became a fact. There is every reason to believe that Aristotle was convinced that there were microörganisms that were responsible for disease. However, many years have passed, during which we have no record of any valuable research work having been done or any important observations made in regard to the germ origin of disease, until 1843, when the late Dr. Oliver Wendell Holmes, whose memory we are all delighted to honour, having convinced himself of the transmissibility of the so-called puerperal fever, wrote and published a mono-

graph on this subject, which, in itself, was sufficient to have immortalized his name. Three years after this, in 1846, Semmelwisse a young Hungarian from Budapest, being in charge of the Lying-In Hospital at Vienna, as a consequence of keen observation, was convinced that the so-called puerperal or childbed fever was transmitted to the patients in the lying-in wards of the hospital by the doctors who were engaged in pathological work in the dissecting room. This was probably the first evidence we had of this being a wound infection. In 1849, in a small town on the Rhine, a physician, named Pollenger, became interested in examining the blood of human beings and animals, both in health and disease. In examining the blood of cows suffering from anthrax, he discovered small, rod like bodies, which did not appear in the blood of healthy animals. This so interested him that he made a large number of examinations and repeatedly found these rod like bodies present in the blood of the animals suffering from this disease, therefore became convinced that there was some connexion between the two. He presented his findings, in the form of a paper or an address, to the medical societies, setting forth in detail the work that he had done, the observations made and the conclusions arrived at. This was subsequently published in the *Medical Journal* but there is no evidence of it having given any special concern to his colleagues. Later on, this work was taken up by Devaine, who went a little further than his predecessor and inoculated animals with the blood taken from those suffering from anthrax, with the result that they practically all contracted the disease. This research was subsequently pursued by Koch, Pasteur and others.

The Immortal Pasteur

To Pasteur, more than any other, are administrators of public health indebted for having so efficiently blazed the trail for scientific public health administration. As Elliott of Harvard expressed it, referring to the extension of Pasteur's work into biology: "The career of Pasteur illustrates admirably the passing of the scene of beneficient scientific research from chemistry and physics to biology."

Pasteur was not long pursuing the study of biology before he was convinced of its wonderful possibilities, as is well expressed in the following extract from his own pen: "What would be most desirable would be to push these studies far enough to prepare the road for serious research in the origin of the various diseases." It is, therefore, quite apparent that Pasteur had quickly grasped the

importance of this science which has been demonstrated to be the most serviceable of all the sciences to mankind. One can have some conception of the keen sense of responsibility of this man from the following extract from a letter written by him to his father over half a century ago: "God grant that by my persevering labours I may bring a little stone to the frail and ill assured edifice of our knowledge of these deep mysteries of life and death, where all our intellects have so lamentably failed."

What Biology has done for Preventive Medicine

It was not until 1866 that this knowledge of the germ origin of wound infection was turned to practical account by Lord Lister in his principles of antiseptic surgery, and it was not until ten years after this again that these principles were fully accepted, the religious carrying out of which is alleged to have saved more lives than were sacrificed in all the wars of the Nineteenth Century. Following this, discoveries have been made from year to year and the individual organisms responsible for different diseases have been isolated; thus, preventive medicine has been placed on a definite scientific basis. Having been placed in possession of this knowledge, it was then given to us to determine the various ways and means by which these organisms were transmitted from one to another and to decide on the best means of control. Through the science of biology we have acquired an accurate knowledge, not only of the germs responsible for many of the diseases, but also of their haunts and habits. Through this science of biology in its broader sense, we know that the so-called criminal—whether a burglar, a murderer, a forger, or a prostitute—is, for the most part, suffering from a mind diseased, and therefore should be cared for in hospitals rather than in courts and prisons. This is true of probably two-thirds of the prostitutes in all large cities, who are in a degree mentally defective girls and who have, to a large extent, been "more sinned against than sinning". This is preventable by segregation or sterilization. While mental defectives cannot be cured, yet their reproduction can be prevented.

It is interesting to note in this connexion that one, who was neither a physician nor a biologist, but a statesman with vision, talking over the heads of his colleagues in the British House of Commons nearly three quarters of a century ago, said: "Public health is the foundation upon which rests the happiness of the people and the strength of the nation. Take the most beautiful kingdom, give it intelligent and industrious citizens, progressive

manufacturies, productive agriculture, let Arts flourish, let architects cover the land with palaces and mansions and, to preserve all these, maintain an indomitable army and navy, but, if the population of that country remains stationary, if it decreases physically and mentally, that nation must fall. This is why I say that the first duty of a statesman is the care of the public health." (Benjamin D'Israeli.)

Education the Most Potent Factor

In the first place we must sweep aside the fallacies of the, past. We must unteach much that has been taught; for instance, the abating of nuisances and the general cleaning up of a city, plumbing inspection, the collection and disposal of garbage, etc., are no longer recognized by modern departments of health as activities essential to their departments. That all this should be done in every self-respecting community, no one will question, but what we do question is whether or not they play any direct rôle in the safeguarding of human life. They constitute, rather, the ascetic side of public health work and are rarely, if ever, responsible for the transmission of disease. Offensive odours do not produce disease, but decomposing animal and vegetable matter, through affording a breeding place for flies, may constitute a condition prejudicial to public health and should, therefore, not be tolerated in any municipality.

We must concentrate on the real, preventive medicine problems. We must so enlighten the public as to the control of these diseases that they will demand that, if they are preventable, they be prevented. This done, our problem for securing the necessary sinews of war is practically solved. Obviously, then, education is a pre-requisite to efficient public health administration. We have known for the past twenty-five years or more that certain diseases are due to specific germs and that all diseases are due to some infective agency. However, it is only within the past ten or fifteen years that we have had a proper conception of the haunts and habits of these various disease-producing germs and the ways and means by which they are transmitted from one person to another. We know that these diseases are transmitted, for the most part, by personal contact and indirectly through food and drink and eating and drinking utensils which have been contaminated by contact with infected people. Here we must ever keep in mind the mild cases, the unrecognized and unreported cases and the carriers. The two most common channels by which this transmission takes

place are our water supply and our milk supply. The water supply of any municipality can be made safe by filtration and chlorination, and the milk supply of any municipality can be secured clean by means of a well organized system of dairy farm and dairy inspection, with proper regulations, rigidly enforced, but clean milk does not by any means mean safe milk. The only way by which clean milk can be made safe is by scientific pasteurization. By scientific pasteurization we mean the raising of the milk to a temperature of 145° and maintaining it at that for twenty-five to thirty minutes, then immediately cooling and keeping it at a temperature of not more than 40° until it reaches the consumer. This will destroy all disease producing germs and will not in any way affect the nutritive value, chemical composition or digestibility of the milk. Inasmuch as it is possible for any municipality to carry out this system of safeguarding their water supply and their milk supply, I unhesitatingly say that any community failing to do this is guilty of criminal negligence. Death from typhoid fever or tuberculosis is practically murder or suicide.

Next in importance is the efficient supervision and control of our restaurants, dining-halls and all places where food is handled and served for human consumption. All employees should be required to supply a certificate of health every six months, stating that they are free from any communicable disease and have not been associated with it for the previous two months. All eating and drinking utensils should be efficiently sterilized. The windows and doors of all restaurants and dining-halls should be screened so as to exclude flies. However, we cannot hope for full coöperation from the public until they are told why.

The Public must be Educated

We are, fortunately, living in an age when people no longer wish to be treated as machines. It is obviously imperative, then, that the knowledge of the ways and means by which disease germs gain access to our bodies—which has, for the most part, been kept within the precincts of our universities and laboratories—be democratized, that it be translated into language which can be understood by the man on the street and the woman in the humblest home in our city. They must be taught that the principles of antisepsis, which have done so much to control the transmission of septic infection in surgery, are the most efficient means by which we can control the spread of communicable disease. The question arises, then, how can this education be best accomplished? How

can we get this information across to the people? Many opinions have been expressed and excellent plans for educational campaigns have been suggested but we have to bear in mind that every one has to be educated, that we must reach every man, woman, and child in the nation and that we have to deal with all degrees of intellect, from the president or chancellors of our universities to emigrants who cannot read. Obviously, then, there is use for our public health bulletins, for our press notices, for our leaflets, and for our different addresses, but the thousands who cannot read and the still greater number who do not read or do not think when they do read, and consequently require this education most, can only be efficiently educated by personal contact through heart-to-heart talks in the home, which can best be accomplished by the public health nurses who are visiting the homes. The personal touch and the personal services rendered by these nurses have given them a opportunity to establish confidence in the homes, which is a prerequisite to all instructions. However, this education should begin in the schools. It should constitute a part of the curriculum of every public and parochial school. There should be health catechisms for the kindergarten and there should be proper textbooks for the higher classes. These should be reinforced by a series of talks on the various phases of public health administration by the representatives of the department of public health, and the present course of hygiene which constitutes part of the curriculum in medicine, should be extended to Theology, Law, Arts, and the Sciences, but, while this is being done in the schools and universities, we must educate the present generation in the homes. The most outstanding example we have of the possibility of efficient education in this way is that in connexion with the control of tuberculosis. The nurses attend the tuberculosis clinics and follow the patients to the home, instruct the people in the home as to the danger of contracting this disease, the danger of the spreading of it, how this danger can be eliminated and how the one afflicted can be given the best chances for recovery and, incidentally, while visiting the home they ascertain the social conditions, as to whether or not the revenue of the home is sufficient to supply proper and sufficient food, not only for the patients but for the other members of the family, in order that their resisting powers be properly maintained. The nurse sees to it that the contact cases in that home are taken to the clinic for examination, in order that they may have detected the earliest possible invasion of the disease and thereby receive treatment at a stage when treatment is likely to be followed by

success. The instructions given by the nurse in the home in regard to tuberculosis are more or less applicable to all other communicable diseases.

Additional Public Health Activities

However, when we have controlled communicable diseases, we have only accomplished a fraction of our work, inasmuch as there are many diseases that are not communicable, that are preventable or are postponable. For instance, the non-communicable diseases of infancy and childhood which are responsible in a large measure for our still unduly large infant mortality. There has probably been no other problem engaging the attention of progressive departments of health for the past five years at least, to a greater degree than that of our ever increasing infant mortality during the hot summer months. This has been the topic of earnest discussions in pediatric societies, congresses on child hygiene, and departments of public health, and yet the problem is not efficiently solved. There are, however, outstanding features upon which there is a concensus of opinion. These are—poverty, ignorance, and breast feeding—poverty with all its accessories coupled with an absolute lack of knowledge as regards the best means of safeguarding and developing the offspring properly, unitedly deal out their dreadful influence before and after birth. These observations have not been limited to recent years as evidenced from the following quotation from Shakespeare:

> "Famine is in thy cheek,
> Need and Oppression stareth in thine eyes,
> Contempt and Beggary hang upon thy back.
> The World is not thy friend, nor the World's law."

What a demonstration of man's inhumanity to man and this has been continued and handed down through the generations. However, the departments of public health, through their divisions of infant and child hygiene are bending their efforts against these foes, by educating the mothers and endeavouring to improve social conditions. If the expectant mother suffers from want, the developing offspring, wholly dependant upon the mother, is likely to be handicapped as a consequence when ushered into the world. Hence, logically, the care of the infant begins during the pregnancy of the mother, or the pre-natal period. Therefore, the general instructions of the expectant mother, both social and hygienic, to protect her against want and to improve her surrroundings, is the first

requisite. This is apparent when we realize that more than one third of the infants that die in the first year, die during the first month, and from 60 per cent. to 70 per cent. of these die within the first week, when death is therefore due to pre-natal causes. Consequently, if these lives are to be saved, it must be by more efficient pre-natal care. If we would save the baby, we must save and protect the baby's best friend—the mother. There is no other resource that the infant has, or can appeal to, comparable to the maternal instinct. With no language but the cry, the infant when in distress promptly appeals in this way, which appeal none but the mother can properly interpret. It is a well recognized fact that the infant nursed at its mother's breast has ten chances for life and efficient development to one that the artificially fed child has. Consequently, our pre-natal care must embrace not only efficient piloting of the mother through her pregnancy and confinement, but we must also see that as far as lies in our power, we make it possible for her to nurse her baby. An absolutely safe milk supply for the entire municipality is the prerequisite in an organization of infant and child welfare. This secured, the organization of well baby clinics and milk depots come next in order. The babies are examined at regular intervals by competent pediatricians as regards their weight and general physical development, and instructions given in regard to feeding, clothing, etc., by both physicians and nurses, public health nurses following the cases, when necessary, to the homes in order to see that the doctor's instructions are carried out. Our physicians and nurses are endeavouring to make it possible for mothers to nurse their babies by instruction, reinforcing the revenue of the home and proper and sufficient nourishment. The entrance of women into industrial pursuits has at times made this more difficult. However, nations are beginning to recognize their obligations and some are leading the way. For instance, New Zealand, which has probably the smallest infant mortality of any country in the world—has accomplished this by nursing premiums. The mothers are allowed $50.00 by the government for nursing their babies. It has well been said by early writers, that for the infant, "All blessings flow from the maternal fount provided by Nature," and inseparably linked up with the care of the infant is the care of the child in the pre-school age. This is the period in which, unfortunately, the children in most municipalities have been sadly neglected until they enter school, when through a properly organized system of health supervision in the schools, they are cared for. It has been repeatedly observed that a large

number of children, even though healthy in all respects at birth, become within the first five or six years, physically defective, with the consequence that municipalities through their boards of education and departments of health, are required, at no small cost, to restore these children, as far as possible, to their original state of health, to say nothing of the injustice to the child. This is not good government. The care of the child in the pre-school age should constitute a part and parcel of the duties of the organization of infant and child welfare, in all departments of health. This, when linked up with the medical supervision in the school, secures for the child the development of the best, physical as well as mental, of which it is capable, and to which every child is justly entitled.

The Influence of Industrial Diseases

Another lamentably neglected branch of preventive medicine is that of industrial diseases and industrial hygiene. Inasmuch as industrial diseases are, for the most part, preventable and industrial hygiene is essentially a part of a community hygiene, it must, obviously, come under the regime of the department of public health and the local board of health of every municipality. The term, "industrial diseases," embraces, first, the results of general insanitary conditions in factories, workshops, workhouses, and warerooms, badly lighted, overheated, improperly ventilated, ofttimes containing a dust laden atmosphere and improperly controlled heat and humidity, all of which, with the influence of fatigue, etc., tend to lower the vitality and, therefore, also the resisting powers of the body. The individual is thereby rendered an easy prey to infection which he may be daily exposed to in consequence of close contact with possibly a tubercular person or one convalescing from some communicable disease, or a chronic carrier. On the other hand, such environments only hasten on the fatal issues of these unfortunates, who are already the victims of some of the aforesaid diseases, who, through ignorance of their conditions or the dangers of their environments or through dint of circumstances, are compelled to face the inevitable.

Then we have the morbid state, consequent upon the occupation of trade, giving rise to specific disease, such as lead poisoning, arsenic poisoning, phosphorous poisoning, mercury poisoning, poisoning by fumes of mineral and other acids, wood alcohol, etc. It matters not whether a man dies from smallpox, typhoid fever, tuberculosis, lead poisoning, mercurial poisoning, or cancer, or from one of the degenerative diseases of middle life, it means a

human life lost that might have been saved, The loss to the community, to the home, and to the nation is just the same; consequently, the control or postponement of these is essentially a part of the duties of departments of public health.

Degenerative Diseases of Middle Life

Then we have the degenerative diseases of middle life, another activity that has been lamentably overlooked by departments of public health. While we have been able to reduce materially the mortality from the more acute, communicable diseases, we are confronted with the appalling fact that in the past thirty years the death rate from degenerative diseases of the heart, arteries, and kidneys has increased 100 per cent. on this continent. This is not the case, however, in England, Sweden, and other European countries. In a group of apparently normal, commercial employees of an average age of thirty years, examined by the Life Extension Institute in New York City, 36 per cent. gave evidence of disease or disorder of the kidneys, 20 per cent. had abnormal blood pressure and 13 per cent. had hardened arteries. No intelligent community or nation can afford long to disregard these degenerative diseases and their economic loss, occurring, as they do, at the period in which life is most valuable and in its most productive period. The longer old age is postponed, the more time there is to provide for it. As Metchnikoff wisely pointed out, one result of lengthening life will be a greater utilization of the accumulated experience of years. We shall have less immaturity of judgement. The principle which leads to the choice for members of the judiciary of men of ripe years and knowledge will apply to every field of human activity, even in those fields which are now preëmpted by young men because of the necessity of utilizing their vitality. This will give to society a body of men with mature judgement of advanced years, yet healthy and fit, whose opinion and worth, in consequence of mature experience, cannot be over estimated. Our disregard for middle life and the degenerative diseases of middle life, and our insane methods of living, have very materially shortened the natural limitations of human existence. The Flourens' law that a mammal should live five times its growing period would, for the most part, hold good for our lives and the lives of all mammals if they were normal, and inasmuch as man is not fully matured until thirty years of age, this would place the length of his normal life at from one hundred and twenty-five to one hundred and fifty years. There are authentic cases on this continent of men and women reaching

the age of one hundred and ten to one hundred and twenty. Metchnikoff maintained that the average old age should not at the present time be less than eighty-three years. If a business man were to look after his business in the slipshod sort of way that men look after their health, how long would that business live? Let us be sane then and be examined every six to twelve months. Pay your physicians for keeping you well and not for trying to cure one of these degenerative diseases, which come on so insidiously that they are incurable before discovered. We must remember that these diseases have no symptoms that can be detected by the patient until they are far advanced. Professor Irving Fisher, of Yale University, gave a full report of the examination of 2,000 employees, young men and young women, in different occupations in New York City: 13·10 per cent. had hardening of the arteries, 25·8 per cent. had abnormal blood pressure and 25·3 per cent. gave evidence of some kidney or liver trouble. Impairment was sufficiently important in 59 per cent. of the total number for the examiner to refer them to their own family physicians. These could all be postponed for from ten to fifteen years. Intemperance in eating and drinking, insufficient exercise, worry, the strenuous life, the mad rush for the almighty dollar—all interfere with metabolism resulting in auto-infection or auto-intoxication, and are therefore the great curative factors—these are preventable, why not prevent?

Venereal Diseases—A Public Health Problem

In our failure to grapple with the problems of venereal diseases as communicable and preventable diseases, we are confronted by another unpardonable neglect of our duties. It is the opinion of those who are in a position to judge that venereal diseases constitute the most important of all factors in the degeneration and depopulation of the world. The innocent and the guilty, the intelligent and the ignorant, are paying the penalty of an ill-considered, false modesty in terms of morbidity and mortality that probably surpasses the amount of all other communicable diseases combined. The enormous medical, social, and economic significance of venereal diseases, which are largely the result of prostitution, has never been properly appreciated by any nation. Administrators of public health can, therefore, no longer afford to disregard these diseases as an essential part of their efficient administration.

Health Insurance—A Public Health Problem

There are few problems affecting the ever increasing responsibilities of public health administrators receiving more serious con-

sideration, and deservedly so, than that of health insurance. While much is being done by modern departments of health to make amends for the failures of the past, yet much remains to be done, and we see a valuable ally in health insurance—its relation to public health is manifest. Pioneer work on this problem has been done by European nations and a bill for compelling health insurance to cover all forms of sickness and mishaps not covered by workmen's compensation is now before five or six state legislatures and is being agitated by other states. Sickness and poverty go hand in hand, the one ever producing the other, and both are oft-times closely allied to vice and crime.

If we would have a sturdy, thrifty race, we must make it possible for them thus to develop. We have, in health insurance, an ally that points the way—a co-partnership of the employer, employee and the government.

When the Right Hon. David Lloyd George, the most outstanding character in Great Britain to-day, presented his Bill for health insurance, or, as he styled it, "Sickness Insurance," or "The People's Insurance," to the British House of Commons five years ago, among the different reasons presented by him for the Bill was one based on a statement in the House by the Right Hon. John Burns, president of the Local Government Board, that 30 per cent. of pauperism in Great Britain is attributable to sickness. On the other hand, however, it must be borne in mind that a large per centage of sickness is due to poverty. Nations are realizing more and more every year the fact that the health of the wage-earning population depends, in a large measure, upon economic conditions.

What does this economic loss mean to the 2,400,000 wage earners of Canada? According to valuable data to hand, which is based on an investigation into between 25,000,000 and 30,000,000 industrial workers in different nations in Europe and different states in the Union, the average loss of time through sickness of wage earners is nine days per year. Estimating this loss at an average of $2.00 per day and an additional cost of $1.00 for medical attendance, means for 2,400,000 wage earners of our Dominion an economic loss of over $64,800,000 per year.

A government system of health insurance can be adapted to this country, and when adapted, will prove to be a health measure of extraordinary value. The fact that under such a system the employees have such a large measure of ownership and control, will remove all elements of paternalism. The employees will then regard the benefits as rights, not charities. Adequate medical relief

will be placed within the reach of even the lowest paid worker and provide for him and his family during sickness. It will give to those responsible for conditions causing sickness a financial incentive to prevent disease. Its administration must be closely coördinated with public health agencies if it is to attain the greatest degree of success as a preventive measure.

In estimating the economic loss of the wage earners of this Dominion, no attempt has been made to estimate the loss of life, funeral expenses, or loss through partial permanent disability, consequent upon certain forms of sickness, or of the sorrow and anguish.

Furthermore, no attempt has been made to estimate the loss to the employer through physical unfitness of his employees. The conditions which give rise to the expressions—"I am out of sorts," "I don't feel fit," mean a loss of efficiency of at least from 5 to 10 per cent. Employers of labour can no longer afford to disregard such problems.

It must be apparent, therefore, that no farther reaching public health measure has ever been brought to our attention, for under its provisions it will be in the interests of both employer and employee to use all preventive measures to ward off disease since all are contributors to the insurance fund. Better health means higher efficiency. It is estimated by the public health service of the United States that 35 per cent. of the average earners of this continent must ask for public or private charity when disabled by disease. The average wage earner cannot afford to carry health insurance and when laid up is cast on the state or municipality for treatment, so that ultimately the government or the municipality has to pay the bills.

The Monetary Side of Public Health Administration

At the end of 1915 the Department of Public Health in Toronto endeavoured to ascertain what the monetary value of public health work really was, in view of the fact that, with those who have not made a study of the various problems and have not attempted to place any monetary value on human life, the expenditure of departments of public health are not infrequently questioned and the appropriation given for the safeguarding of human life, and the prevention of sickness, is, consequently, only too often far below what it should be. It was found in this investigation that the number of deaths that would have occurred in 1915, had the same death rate continued that existed in 1910, would have been 1,102 in excess of what it really was. In other words, the reduction in our death rate

from 1910 to 1915 meant that in the latter year we had 1,102 fewer deaths than we would otherwise have had.

Estimated Value of Public Health Administration

In making this estimate of the saving through the efforts of the department, different items have been taken into consideration. In the first place, the general death rate in 1910 for Toronto was 14. Therefore, the number of deaths that would have occurred in 1915 from all causes, if the 1910 death rate had continued, would have been 6,650 but, as a result of the lowering of the death rate, the actual number of deaths that did occur was 5,548. Therefore, the number of lives saved in 1915 as compared with 1910 was 1,102. The actual monetary saving of the municipality, as the result of the saving of these 1,102 lives, we have computed as follows:

Average value per life, as determined by Prof. Farr, of England; and Prof. Irving Fisher, of Yale University (all causes and ages considered), is	$1,700
Therefore the total savings in capitalized value of these lives was	1,873,400
Cases of sickness prevented (estimated as 15 for every death) meant a saving of	16,530
Months of sickness prevented (three quarters)	12,397
Cost of attendance saved	185,955
Loss of earnings prevented	309,925
The total saving effected for 1915 was found to be	2,391,320

The number of tax payers in Toronto is approximately 162,000. The increase in expenditure on public health as compared with 1910, was $216,328, or $1.34 per tax payer. The savings obtained by this increased expenditure of $1.34 per tax payer is at least $1,760,125, or $10.86 per tax payer, which means an annual profit upon the entire investment of $9.52 per tax payer.

In this estimate, no account is taken of the minor ailments—such conditions as cause a man to say that he's "out of sorts", "on the rocks," or "unfit". Such conditions, it is estimated, decrease the efficiency of that man's work from 5 per cent. to 10 per cent. and most of these conditions can be prevented by proper methods of living. It has been determined by educational associations in the United States that from 20 per cent. to 25 per cent. of

efficiency in teachers and pupils is lost through improper ventilation.

Furthermore, no attempt has been made to estimate what these 1,102 lives saved would have meant in sorrow, in anguish, in 1,102 homes in Toronto. This cannot be estimated. Only those who have passed through it can have any conception of what it means.

Nor does this take into consideration the saving effected by well-organized divisions of industrial hygiene as well as other activities along the lines of preventive medicine.

Investment in a Baby

How many parents have stopped to estimate how much money they have invested in every one of their babies by the time it is a year old and by the time it enters school? Let us roughly estimate how much the average ratepayer has invested in his baby. In the first place, his doctor's bill will be at least $10.00 and ranging from that to $100.00. In the interests of economy, he will, no doubt, employ a nurse for about two weeks, for, say, $10.00 a week and board, which would mean, conservatively estimated, $25.00. The mother's time and attention for at least three months before and nine months after birth—all of this time she could have been earning at least $1.25 a day, which, no doubt, she would, at the most conservative estimate, have been earning if she had not been raising children. This would mean approximately $375.00, so that at the end of the first year he has an investment of at least $400.00 and, in the event of any reasonable prolonged sickness and death, probably another $100.00 expense would be added—to say nothing of the sorrow and anguish, which could not be estimated in dollars and cents. And, by the time the child is ready to leave the public school, he has invested in it over $2,000.00 and by the time he is twenty-one, there will be an investment of $5,000.00 and, if he takes a university course, an investment of from $12,000.00 to $15,000.00.

This only represents the monetary investment of the parents alone. To this must be added the national value, which is not inconsiderable. We must recognize that these babies born in Canada are, for the most part, of the man timber that our men are made of who are distinguishing themselves for deeds of bravery and for endurance in France and Flanders and, in fact, all along the line, any one of which is probably a more valuable national asset than two or three of the immigrants who will be coming within our gates.

What is being done to safeguard this great investment? If the same investment were made in Holstein calves, there would be no question about the government's activity. However, it is gratifying to know that, since the establishment of the division of infant and child hygiene in connexion with the Department of Public Health in Toronto, two and one-half years ago, our infant mortality has been reduced over 30 per cent. In other words, practically one third of the dangers of the child dying within his first year have been removed. If we go back to 1910, we find that our infant mortality was 139 per 1,000 babies born. In 1916, it was 91·5 per 1,000 births. In other words, 676 fewer babies died last year than would have died if the infant death rate of 1910 had continued. This 676 represents $270,400 of an investment saved to the parents alone—to say nothing of the nation, to which every well born infant should mean at least $1,000.00. Last year there were born in Toronto 14,796 babies. This by the time they are one year old, represents an investment of $5,918.400. The amount expended in the division of child hygiene and for the safeguarding of all these little lives and this enormous investment is approximately 12½ cents per capita to the citizens of Toronto, and this represents only one of the activities of Toronto's Department of Health in safeguarding human life. And, furthermore, it represents only the monetary side, to which, with statesmen at the helm, it should not be necessary even to refer. It does not take into account what those 676 babies saved have meant in the saving of sorrow and anguish; it does not represent the fact that there were 676 fewer sorrowing mothers leaning over little white caskets in the city of Toronto alone in one year. Would this phase of the work alone not more than warrant the expenditure that is asked for the administration of the entire Department?

From the foregoing, it must be apparent that appropriation for public health administration is not an expenditure, but an investment, yielding larger dividends, many times over, than any other municipal expenditure.

Conclusion

Obviously then, modern public health administration, to be efficient, must embrace all that goes to make for race betterment, for nation building—it matters not whether the man dies of typhoid fever, lead poisoning, mercurial poisoning, syphilis, or premature hardening of the arteries—the loss to the family and to the nation is just the same, and equally preventable. The efficiency of the

people, the brains and brawn of the men and women that make up the nation, determine the strength and efficiency of that nation, whether in peace or in war, Consequently, the problems embraced in public health administration are federal—provincial and municipal. These are problems that governments must reckon with and that must take precedence to all others. Nations have long since recognized their responsibility to educate their children and have made this compulsory under the Truancy Act, and advisedly so, but for the most part have failed to recognize the obligation to safeguard the lives and health of these children and thereby secure their physical fitness. Every child has a right to be well-born and then is entitled to the development of the best, mental and physical, of which it is capable. The safeguarding and developing of the physical is even more essentially a national problem than the development of the mental, and its neglect in any nation is an economic error of inestimable magnitude. This country is spending over one million annually to educate children who die from preventable diseases before they reach the age at which they could make any return to the government for the money that has been expended on their education. This is not good government, nor is it nation building.

A DONATION of one hundred thousand dollars was forwarded a short time ago to His Majesty the King by Major W. Napier Keefer, M.D., of Toronto, late I.M.S., to be put to whatever use His Majesty might deem most suitable. The money has been allocated in the following way: two thousand pounds to the Star and Garter Home for Paralyzed Soldiers; two thousand pounds to the Nurse Cavell Homes; one thousand pounds to the Auxiliary Officers' Consumption Hospital; five hundred pounds to the Prisoners' War Fund; two thousand pounds for orthopædic treatment; and two thousand pounds for the treatment of deaf soldiers. Major Keefer entered the I.M.S. on October 1st, 1869, and retired on December 18th, 1889. He was for many years medical officer of the 13th Bengal Lancers, and afterwards chief medical officer of the Andaman Islands. He served with distinction in several campaigns in India and in Egypt.

A STUDY OF CERTAIN PSYCHOGENETIC CONDITIONS AMONG SOLDIERS*

By Colin Kerr Russel, Major, C.A.M.C.

Physician in Charge of Granville Canadian Special Hospital, Ramsgate

I AM using the term "Psychogenetic conditions" to include those cases of disability which have, as the main symptoms, motor and often sensory disturbances, and which, on thorough examintion of the nervous and locomotor systems, show no corresponding signs of organic disease, and which the subsequent history shows to be of a purely mental origin.

These cases may be divided into two main groups:

1st. What we would in civil practice diagnose as hysteria.

2nd. Malingering.

It is these two conditions which I wish to discuss. It is rather interesting to me to compare my experience in a general hospital in France with my experience in this hospital in England. One or two facts seem to me to stand out most prominently:

1. In France we never saw hysterical manifestations in a man who had received a shell or bullet wound.

2. In France, at the time of the Loos affair, during the shooting season one saw numerous cases of men who were brought in apparently deaf and dumb or blind, who lay in bed evidently in a state of nervous exhaustion—possibly throwing the head or limbs from side to side—who would apparently pay no attention to any one speaking to them, but one saw very few cases of psychogenetic paralysis of limbs and, in every case I did see, I was forced after careful observation and study to come to the diagnosis of malingering rather than that of hysteria.

For example: One man was admitted to my ward with all the outward and visible signs of a right hemiplegia of a severe type. The history of the onset was suggestive. After a foot bath parade, when lined up, the order was given, "Right turn."

*The first four pages of this paper have already appeared in the issue for October, 1916. Since then the complete article has come into our hands and is published here as a whole on account of the interest of the subject.

He could not right turn so he had to left about turn. Just previous to this he had had pain in the right shoulder. He was very soon made to understand that his trouble was not of an organic nature and, in a confidential interview, he gave me the following story:

He was a regular in the Imperial Army and his time, seven years, would be up in one month. Since joining the army he had married and now had three children. He wished to leave the army at the expiration of his time. In spite of my explanation that that would be impossible, as he would naturally go on the reserve list and the reserve had been called out, he maintained that it was quite possible—perhaps later he would join the Army Service Corps—and so on. His method of getting out of the Army seemed obvious.

I also saw quite a number of cases of convulsive seizures, some of course, genuine idiopathic epilepsy, but others definitely psychogenetic, and it was in the consideration of these cases that I first came to the conclusion that there was a very close association, especially in the early stages, between hysteria and malingering. In both conditions at the commencement, there is the same small element of deception, which, if not recognized and corrected early, in the one case, grows enormously because the patient is not deceiving himself, but is becoming confirmed in his ability to deceive others; in the other case, the deception does not become so obnoxious, at least, because the patient has finally by a process of auto-suggestion, or even auto-hypnotism, aided possibly by suggestions of casual examiners, managed to deceive himself as well.

For example, in which category would one place the following case:

A young man was admitted to my ward in No. 3 Canadian General Hospital with a diagnosis of epilepsy. The following day we got orders to empty the hospital in preparation for new cases. I sent him to the Convalescent Camp, thinking he could be observed there. In the course of the week he was returned with a note to say he had had two attacks and was now in an epileptic condition and that they could not keep him. I camped in that ward until he had another attack, fortunately I did not have to wait long, and I saw that it was not of a genuine nature, and put it up to him. His story was this:

He had been at the front for twelve months, since the day of the German retreat, and had had no leave. He felt that it was due to him. Moreover, he showed me a letter from his sister,

stating that his brother had been severely wounded and it was a question whether his leg could be saved. His aged mother had taken it very badly and was very ill and praying for his return. He said when he thought of all this he felt so badly that it just seemed to get worse and worse until he had an attack. He admitted that he could control them. I told him the army authorities tried to be just, and if he had been at the front for twelve months without leave, it certainly was due to him, but he must realize that to behave in such a manner was really only doing the essential part of himself a greater hurt than if he were wounded, and so on, and that if he would play the game, I would send him to the Base with a recommendation for leave. I kept him in a week or ten days longer and the change in him was remarkable. He was bright and active and cheerful around the place, and had no more attacks. Which category is such a case to go in?

Now, in England, I have found a great number of cases of paralysis of either one or both legs, or of an arm—of a psychogenetic origin—and relatively very very few of these have received wounds.

Let me detail two histories as I got them from the patients. I do not propose to show the patients for the reason that they have given me their confidence and I feel strongly that I have no right to abuse it.

One young man came in on crutches, he had become paralyzed completely in his right leg and partially in his left. Since using crutches, he had developed paralysis in his right arm. There were very marked vaso-motor changes in the right leg and arm, with loss of sensibility to pin prick. He was told that there was no reason why he could not move all his limbs perfectly. He would not believe this and said that he had tried, not any longer ago than that morning, when in the lavatory alone, and could not move them. After talking to him (and it is essential that such a talk be in private) he was soon persuaded to use his arm and to walk perfectly, and he has done so ever since. His story was this:

Whilst in the trenches, he had an attack of sharp pain in the right knee. He volunteered the statement that he had not used his leg as much as he might have and gradually it became more and more useless and his left leg became affected. When he began to use crutches, he developed crutch paralysis in the right arm. He had been paralyzed some three months. He said the reason for his not using his leg was not on his own account, but on account

of his mother at home. Since enlisting, his grandfather had died, his two brothers had enlisted, and his mother was left alone and he wanted to get home to her. He seemed really grateful for his cure.

Another case shows another source of suggestion:

A young man was admitted with paralysis of both legs of six months' duration. Examination showed a not very robust youth. He had slight power of movement at the knee, none below. Loss of sensibility to pin prick of the stocking-like variety from knees down. One could stick the pin through a fold of flesh here and there was no bleeding. Reflexes were not pathological. Although he had to be carried into the examining room he walked back to his ward, up some stairs. He told me the following story:

Three of his brothers were at the front. He had paid $150 to have his teeth repaired in order that he might be accepted. After enlisting he had married and not been able to get his separation. His wife had become pregnant.

On a route march from Shorncliffe, during a heavy rain storm, he had to fall out. On reporting sick, the medical officer who happened to be doing locum, told him he had weak feet and ankles and they would always be a source of trouble. He lay around the huts, not getting much treatment. Excused duty. Everything wet and cold, and he proceeded to get worse. Was admitted to hospital and had been in bed six months and came to us on a stretcher. This man was evidently, in the first place, keen enough, chiefly, perhaps, because he was the only one of his family who had not yet volunteered, but in the interval he had been supplied with a strong and natural incentive to stay behind. The suggestion of the medical officer fell on fertile soil and sprang up and flourished.

One other patient I wish to bring up, a sergeant suffering from shell shock who had been in hospitals for almost a year. He was still troubled with a marked shaking of his right leg whenever he raised it from the ground. He had walked in supported by a silver headed cane. His trouble was evidently of a purely functional nature. This was explained to him and he was persuaded to stop it and walked out perfectly normally, saying that he would do without his cane. I suggested that it was customary for cases that were relieved of the necessity of using crutches or stick to donate them to the shrine. I was diffident about it because it was a fine cane and must have cost at least three dollars. However, my friend, the sergeant, evidently begrudged the shrine

his cane and made a hasty retreat, carrying his cane in front of him, before anything more could be insisted on.

I could quote other cases but space forbids.

There are, however, questions we must ask ourselves:

1. Why do we so seldom see psychogenetic paralysis—apart from malingerers—in France, and yet see so many here? You may say it is because I am in a special hospital here where these cases are collected. Possibly there is some truth in that, but I do not believe it is the whole truth. Others in France with long service have told me that they have had the same experience there. It is a question to consider.

2. Why do we so seldom see psychogenetic conditions in men who have received a wound and never in cases where the disability from the wound is serious? The reason seems to me obvious. They have received an honourable wound and have earned their passage to "Blighty", and there is no reason for them to invent any further disability to attain their desire.

3. Why did my friend, the sergeant, begrudge his silver headed cane to the shrine on being cured? The next patient, who had a lesion of the sciatic, replied when he was asked if he would give a similar cane to the shrine if we cured him in fifteen minutes, "Just try me, I would give a good deal more than that."

Was it not that in spite of his disability of almost a year's standing, he felt himself that it was not as serious as it looked. I repeat therefore, what I said before, that in all these psychogenetic conditions, there is primarily an element of deception. Some patients who may be specially constituted mentally manage very soon to deceive themselves. In the others we find the pure malingerers. In the first group it is difficult to determine how much they themselves are deceived, but one can readily realize that the longer they are allowed to go on deceiving themselves, the more difficult will be their disillusionment.

The following remarks are based upon a study of sixty cases which have been under observation here in the Granville Canadian Special Hospital.* It must be understood that I have not attempted to include all cases diagnosed as shell shock, although many of these cases have come in with that diagnosis.

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*This series does not include by any means, all the cases of this nature we have tested in this hospital, but no list of these cases was kept, and through oversight in the rush of work, the additional diagnosis "Psychogenetic" was not added in many cases. The ones we have used are those whose case sheets were picked out in a general search, and many more might be added by a more exhaustive examination.

The symptoms have been very varied, but have generally shown muscular paralysis of one sort or another of a purely functional nature of one, or both legs or an arm, but there have been several cases of deaf-mutism and certain cases of mycolonus, with a few of what might be called trench back or a primary kyphosis of a functional origin, which have also been included. There have been included also a few cases of localized spasm of psychogenetic origin producing an equino-varus deformity.

The disability in all these cases has been purely mental in origin and the term psychogenetic has been preferred as being more correct; it does away with the necessity for making a distinction between those cases which may be suspected of voluntary simulation of symptoms and those others which are genuine. While it may seem hard on the genuine cases to bracket them with the malingerers, the separation of these in practice is, in many cases, by no means easy and it might happen that a patient who would be looked upon as a malingerer by some, by others would be considered hysterical, so that the use of this term prevents, in many cases, a grave injustice to some, whereas, in the present reading of the Act, as it is usually impossible to convict any individual patient of malingering, the use of the term loses us nothing. It has also happened in several cases, apparently genuinely hysterical, that more intimate study has seemed to point to a certain amount of deception on the part of the patient at the beginning of his disability, and only later, and apparently by a process of auto-hypnotism, the patient has become genuinely convinced of his disability and shown the usual stigmata of hysteria. At a certain stage, therefore, it may be very difficult to decide in which category the case should be put, e.g., the patient with convulsions.

Although the majority of these cases have come in diagnosed as shell shock, one is driven to the conclusion that this is scarcely the main factor, although it may be the immediately exciting one. Many of the individuals suffering from these symptoms have not been exposed to the action of shell fire, never having been to France, and in many who have been and who, when asked what they complain of, give the self-sufficient answer, "Shell Shock," it is learned on closer questioning that there has been no actual personal contact with the effects of shell explosions such as could possibly produce any pathological lesion of any organ or tissue. Many state that they lost consciousness, but on close examination it appears more likely that it was rather a state of hysterical amnesia.

It should be unnecessary to point out that the symptoms,

which, from a military point of view, cause the disability in these cases, are *merely the symptoms of an underlying pathological condition* and quite analogous to, for instance, polyuria in diabetes, and with as much reason; but before enquiring further into the mental condition underlying, or its cause, let us consider an analysis of these cases.

First, we find 35 per cent. of these cases went to France as drafts to other battalions, and that the average time in France for all of this series was 2·8 months—and this means from the time they left England, and not necessarily all of it near the front line trenches—but if we exclude eight of the collected cases who did spend a fairly long time in France the average time for the rest is reduced to 1·9 month. Nine have never been there at all.

It would be interesting, in this connexion, to know what is the average time of a soldier in France apart from this type of case; but it would strike one that the war must be a very expensive procedure if it is not a great deal longer than this, especially as the average time between the dates of enlistment and the individual entering this hospital as a patient is—in twenty-one of the cases, where the date of enlistment is noted—almost fourteen and a half months.

It would appear, then, that these individuals are not of the sort that stand punishment well, and in fact, the not unusual history is that it was in the first serious bombardment in which they took part that they were returned; only seven out of the whole number received a wound, and in only two of these might the wound be termed serious. In both of these cases, the outlook in the first instance was undoubtedly serious—that is, might have been fatal—but fortunately in both they were completely healed at the end of three or four weeks and the only symptoms resulting were those of a psychogenetic nature. In the other cases, the actual wounds were trifling and should not have in themselves necessitated invaliding the patient to England.

For the recognition of the psychogenetic origin of the disability in these cases, a thorough examination of the nervous system to exclude with absolute assurance any organic lesion of the peripheral nerves, cord, or brain is necessary; and it is never wise to jump to conclusions without making this systematic examination, as it occasionally may happen that psychogenetic symptoms may be superimposed on genuine and organic disability.

It would appear from these statistics that, probably owing to the rush of work, this systematic examination of the nervous

system is frequently neglected, as although these patients had—on an average—been in 3·75 hospitals at the base since leaving their battalion and spent—on an average—126·6 days from the time they went on the sick list before being admitted to the Granville, most of them were still unrecognized.

When one makes a comparison of this length of time with the length of time these patients remained in the Granville, which amounted to fifty-eight days, and when one realizes that the time here was not taken up in curing these disabling symptoms, but rather in correcting the underlying mental processes, one will realize that there is in these cases an opportunity for a great economy of material.

I can say, in fact, that, with about half a dozen exceptions, in all cases the disability disappeared in about fifteen minutes to two hours from the time of the beginning of the first treatment—Sir William Osler suggested describing this method as therapeutic jugulation, i.e., a choking off of the disease—the remaining time of their stay in the hospital was occupied in the endeavour to teach the patient to recognize and to correct the mental processes which had permitted such a condition to occur.

The exceptions to the above statements were certain cases of severe, persistent and general muscular convulsive twitchings, which might be termed myoclonic, and also two cases of trench back, which had been of several months' standing before admission, and in which every known, and apparently, in the patient's judgement, every conceivable method of treatment had already been tried without any results save that the patient was very antagonistic to any further endeavours. These patients, as was to have been expected, could not be cured in a moment and, in fact, added very considerably to the average number of hospital days for this series.

Of the total number of these cases, 71·4 per cent. were returned as fit for full duty; 16·1 per cent. were recommended for temporary base duty and 12·5 per cent. were recommended to be discharged from the army. In the latter groups, the recommendation was based, not on any gross disability, but rather on account of their inherent mental make up, they were deemed unsuitable for military life.

Let us now attempt to come to some conclusion as to the causes which may produce these symptoms, and in doing so it is necessary, first, to estimate as nearly as possible what these symptoms really mean. Clinical examination has shown no evidence

of organic disease and, if we may call it this, the therapeutic test has shown that, where a man has been considered paralyzed for even as long as sixteen months, he has found himself able to walk, and walk well, in the course of an hour or two, so that apparently the underlying condition must be a state of abeyance of that part of the brain which supervises the movements of the limbs that have become paralyzed or which controls the coördinate action of the muscles involved.

Far more than this must enter into the picture, because in many of these cases of paralyzed limbs, there is the loss of sensibility of the hysterical, i.e., the glove and stocking, type, so complete that a pin may be driven through a large fold of flesh without causing any evidence of pain, which would point to the function of the sensory centres of the affected limb being also in abeyance; and, in addition to this, when a pin is driven through in this way, there results no bleeding. This positive sign cannot be accounted for by the simple negative lesion of certain cerebral centres lying in abeyance; moreover, after quite a long experience in civilian practice and in the numerous cases that have come under my observation among soldiers, in spite of no aseptic precautions having been taken, I have never once seen this pin thrust show the least sign of becoming affected; but this latter is by the way—we will return to it later. Evidently here there is some reflex of the sympathetic system acting on the vaso constrictors, which prevents this bleeding and I have demonstrated on more than one occasion that immediately after the patient has regained movement and control of the limb, the slightest pin prick will cause bleeding in the ordinary way.

In searching for a cause that would produce such a condition, one must first notice that the only factor which is common to all these cases is the exposure to, or the expectancy of being exposed to, grave danger, danger clothed in such terrifying forms as human nature has seldom been called upon to face previously. The reflex to such exposure to danger—prompted by the natural instinct for self preservation, common to human nature and to all animals—is expressed in the emotion, fear. I think one can say without danger of being contradicted, even by those heroic souls who have won well deserved recognition on the field of battle, that every individual exposed to these dangers experiences fear. The majority, fortunately, have sufficient strength of will, either inherited or developed by their education, as to be able to control any expression of fear, but nevertheless, there is little question

that the bravest experience it. How, then, can this emotion produce such symptoms? I should have mentioned before that I have carefully excluded from this group of cases any case in which I had an at all reasonable suspicion that the patient was malingering.

One must naturally presuppose that in a large civilian army such as ours, although the enlistment is nominally purely voluntary, in reality it cannot be entirely voluntary. Many outside factors are brought to bear; large firms with many employees cut down the staff on account of the rise in expenses and diminished output, and they naturally let men of military age go first; and many of these, though fortunate enough to be of military age, are not necessarily of military inclination; the womenkind, in their natural enthusiastic patriotism, under the glamour of flags, and while still a long way from the grim reality, have no doubt exerted a strong influence in urging their youthful admirers in the fight for liberty; the fact that on enlistment, payment of debts is held over, becomes a very potent factor where the scarcity of ready money is felt; so that with these, and many other factors, such as the pride of coming from a fighting family, many are induced to join the army who have absolutely no taste nor inclination for the life that they must necessarily follow, and no stomach for the dangers that they must be called upon to face.

The exposure to physical and mental exhaustion, combined with fear, will necessarily render a man lightly suggestible who is not noticeably open to suggestion in civil life; and naturally those individuals whose education and tastes render them altogether opposed to this sort of life, and who have not developed a more than average amount of self control, might be expected to be more quickly affected than others who are buoyed up by the enthusiasm of patriotism or whose inclinations and training fit them better for the life they have undertaken. The work of Freud has shown us how, in civilian life, that great instinct which sits on an equal throne, the sexual instinct, may be the causative factor of precisely similar conditions and, while we cannot follow him nor his disciples in their ultramontane enthusiasm there is little question that there is a basis of truth in his ideas. In civilian life, our instinct of self preservation is rarely, if ever, called into action, while that other great instinct holds sway. While one cannot say that the opposite state of affairs is present in war, certainly the instinct of self preservation is most vividly in action. We have, then, immediately a mental conflict started between the instinct of self preservation and the moral sense.

Under the constant roar of shells and the insults of explosions, combined with natural physical fatigue, the individual's equanimity is very soon worn to shreds and his effort at self control worked to the limit, so that he is quite ready to believe, in this suggestible state of mind, that any muscular stiffness, which he might have experienced in civil life without apprehension, denotes some grave disease and causes a grave limitation of the functions of the part affected; or, if a shell falls close enough, so that possibly he is knocked over by the concussion and bruised, even to a slight degree, by falling earth and debris—much more so if he is badly bruised—strong arguments are added in the mental conflict on the side of self preservation and he is persuaded to believe that he has sustained some grave bodily injury, that his spine has been fractured, especially as it is quite possible that for some time he may actually have, following the concussion, a numbness in the lower extremities and inability to use them; and, apparently, under the emotional excitement it happens that the intellectual control, normally exerted by the higher centres, is often lost and no organic injury whatever has occurred. Apparently, the lower, or emotional centres, once having got control, strive to maintain it until by some means the higher centres are stimulated to regain their natural activity.

One sees in every day life the action of the emotional centres on the sympathetic and vaso motor systems in the blush of self-consciousness, in the pallor of the face, the dilation of the pupil and the acceleration of the heart from fear, in the increased secretion of urine and in the stimulation of the longitudinal unstriped muscles of the bowel, all acting under the influence of the emotions; and so here in these cases, with this abnormal action of the emotional centre one sees the vaso contractors acting when one expects the part to bleed.

It has occurred to me that the immunity from infection in the pin thrust might also be explained through the action of the sympathetic system. One has experienced the rapid formation of bed sores in cases of acute transverse lesion of the cord, forming, as they often do, within forty-eight hours and extending rapidly deep into the tissues of the buttocks, and one has explained them by the rather indefinite "loss of trophic impulse". Why have we not in these psychogenetic cases, got an increase in trophic impulse? The possibilities are obvious. If such a thing exists through the action of the lower cerebral centre on the sympathetic system, why could it not be induced by strong suggestion or hypnotism, and made to help in the fight against infection.

I wish here to distinguish between certain patients who may show precisely similar symptoms, but in the one case the individual has stood the gaff for six, eight or twelve months before being returned as a shell shock case; in the other and more common case these symptoms have developed after two to four weeks. In the former case it seems to me we have what I would term legitimate shell shock. The mental conflict that goes on is comparable to a physical conflict and we all have our physical limitations. In the latter case there has been it would appear little or no real conflict or rather, it has been entirely one sided. The former type is really a condition of exhaustion and requires rest of body and mind.

Cases of muscular twitching or myoclonus are in my experience not so commonly seen, they are apparently more in the nature of a pseudo clonus in highly strung individuals and which is considered the evidence of emotional tension associated with diminished cerebral control. It is practically always noticed, that in their endeavour to control the convulsive movements of the muscles, they bring all the muscles in the neighbourhood of the affected part into strong action, and in this way, emphasize, rather than control, the abnormal action. It is only when they can be taught to relax all muscles that the clonus ceases.

Theoretically then, one would think that any individual who had received a serious wound, which would naturally send him home and incapacitate him for several months, or render him permanently unfit for active service, would not be at all likely to develop any sort of psychogenetic paralysis, on the grounds that there is no longer any conflict to be waged between the instinct of self preservation and his moral sense. The latter is at rest as he is going home honourably wounded and he is under the care of those in whose care he has confidence. As a matter of fact, some time ago, I made the assertion that I had never seen these psychogenetic conditions in France or England in any individual who had been wounded. Since then, my experience has been enlarged considerably, but my statement holds good in the practical sense. In this series of cases seven had received wounds—two were serious; rather might have been, and no doubt caused anxiety in the advanced dressing stations for the first two days, but fortunately, although many vital tissues were in danger at the time, apparently no damage resulted. The wounds in other cases were very slight and should not have in themselves necessitated their returning to England.

Let me quote a few details of one of the seriously wounded cases referred to. Pte. J. M. on June 13th, 1916, was struck by a rifle bullet on the left side about an inch above the base of the neck. It went right through the neck in front of the vertebræ and made its exit on the opposite side of the neck higher up. He was admitted to this hospital on the first of August, with the left arm completely paralyzed. There was no disturbance of function of any of the cranial nerves, no difficulty in swallowing, and he stated that, apart from his arm, he felt perfectly well—but he had absolutely no power of movement in that arm. He was found to have a loss of sensibility to pin prick over the hand and arm to the shoulder, of the characteristic functional type. There was no noticeable wasting of the muscles and the reflexes were present and normal. He was persuaded to use the arm in a few minutes, and did so perfectly, and some weeks later was recommended for temporary base duty.

It seems to me that what happened here was as follows: At first, I am quite sure, he had a paralysis and numbness of the arm, due to the concussion of the nerve roots which go to make up the brachial plexus and that this might be expected to last for several days. At the same time, the serious view which any medical officer would express, on his first coming under observation in the advanced dressing station, and his own common sense, would develop the firm conviction in his mind that, as he was not dead, he certainly would not be called upon to return to the front, and, indeed, he might expect to be invalided to Canada.

However, it would be realized in a few days and while the nerves of his arm were still suffering from the effects of the concussion, that there was no danger to his life, and in fact, little of his health and fitness, and, at the same time, it would be impossible, probably, for a medical man to reassure him as to his arm. As the nerve cords recovered from the concussion, again would start the conflict, only now with a moral sense somewhat weakened by his experience, and the instinct of self preservation stimulated. The lower centres would still be in control, and the question of whether or not the arm could be used would never be submitted to the higher centres of consciousness.

The treatment of such cases must vary in some degrees with every individual case; but in every case it is necessary to acquire the confidence of the patient and, in order to do this, a thorough examination should be made, especially of the affected part. The presence, or absence, of any wasting of muscles should be noticed,

remembering always that more disuse can bring about considerable wasting, but this is usually of a rather general type; next the reflexes and tendon jerks should be tried, and finally the sensibility of the skin to painful stimuli. It must always be borne in mind that the whole examination, from the taking of the history to the final test, should be made without asking any leading question, and with the greatest care not to suggest any answer which may, or may not, be expected. The whole onus of the reply should be left to the patient.

In the great majority of cases, one is able to exclude absolutely any organic disease, and this having been done, the patient should receive this assurance and the nature of the case should be stated to him frankly.

As a rule, he will immediately jump to the conclusion that one considers him "swinging the lead", but this idea can be readily dismissed with sincerity and tact, and his blamelessness in the matter suggested. At the same time it may be remarked that, while one has every sympathy with a man losing control of himself under the circumstances, now that he is assured he can use the limb it is his duty to use his will power to stir up that centre which has been lying in a lethargic condition, or otherwise, one's sympathy will no longer be justified. The little stimulus of fear of being suspected of malingering will act as an incentive to bring into action the defaulting centres.

With the firm conviction in the examiner's mind, gained by a thorough examination, that there is no lesion of an organic nature, exhortation and the firm assurance that he can if he only will, will often bring about a flicker of movement and finally complete control, but frequently one seems unable by any reasoning to incite the patient's will to action. In this case, it is customary to explain again the loss of control and its course, and state that if sufficient incentive were present he would move the limb without effort.

It is not difficult to make up the necessary incentive; all that is necessary is a strong, sudden and unfamiliar stimulus. This results in a reflex withdrawal of the limb before any cerebral inhibition can step in to prevent, and of course, the patient once having seen the limb move at his own initiative soon takes control of it. It is very essential not to rest satisfied before a perfect result is obtained. In the absence of any organic lesion, if the patient can move the part, he can move it perfectly and we cannot afford to be satisfied with less. One will be surprised what can be

accomplished even in cases where, as in our experience here, the paralysis has lasted sixteen and twenty-two months. The latter patient had received a flesh wound of the arm in the retreat from Mons and had suffered from complete paralysis of the extremity for twenty-two months—having received a pension from the Imperial Government for a year. Within half an hour he had recovered the complete use of the arm and hand, so that he could catch a heavy object thrown at him quite perfectly.

The former, when admitted, had had a complete paraplegia for sixteen months. He had suffered with deaf-mutism asociated with paralysis of all four extremities as a result of "shell shock". He recovered his voice and hearing shortly, but only some months later, by the use of hypnotism, had he recovered the use of the arms—apparently the hypnotist could not influence the legs, however. Within an hour of my seeing him he could walk well, and even took a stroll on the parade the same afternoon—after sixteen months in bed, his only complaint being that his feet were tender—naturally the skin was thin for the ammunition boots after not using them.

To expect a cure of these cases by the use of hypnotism alone seems to me utterly unreasonable,—of course, in such suggestible individuals one can readily enough clear up symptoms by its use,—but when one realizes that the paralysis of the extremities or the deaf-mutism are merely symptoms which are produced by a loss of cerebral control, how can one expect to cure the disease by persuading the patient to give up his cerebral control still further, as he must in allowing himself to be hypnotised? Hypnotism is a condition which might be described as induced hysteria, and how can one expect to cure hysteria by superinducing the same condition?

Having thus stated my belief as far as hypnotism is concerned, I may add that I have felt justified in using it in one case, a man suffering from deaf-mutism associated with the most intense contortions of the face and tongue and a most depressed condition of mind. He was the picture of a dement. He sat beside his bed, the tears rolling down his face, apparently with no interest in anything but his own condition. He had had all sorts of treatment without effect. I argued that it was impossible to use reason with such an individual and, if I could clear up his symptoms, I could then explain and attempt a reëducative process—just as one would give morphia for the relief of pain until one could operate and remove the cause of the pain, and I had every

reason to be satisfied with the result. After the third treatment, he had regained his speech and hearing, he had perfect control of his face and tongue, and reëducation became possible. I feel confident that that man left the hospital a stronger character than when he enlisted in the army, because he has now some idea of the functions of his mind and the necessity of self control. Most individuals know a good deal about the functions of their stomach; they realize that if they eat indigestible things they will suffer from certain unpleasant symptoms and they know how to go about getting relief; but very few realize that a similar maltreatment of their minds will cause even more unpleasant symptoms. There can be no question that happiness—not pleasure—is the only essential in this world. Riches without happiness is dross; health, a chimera. Happiness may be found associated with either wealth or poverty, physical health or deformity, but without happiness none of these count. A proper understanding of those functions of the brain which we term the mind is essential to happiness, and yet so few have been taught to be on as intimate terms with their minds as they are with their stomach.

It seems to me that the use of an anæsthetic in cases of deaf-mutism as a means of curing them, is utterly unscientific. If one considers the action of the anæsthetic on the cerebral centres, one must realize that what has happened is that, under its action, there has been a withdrawal of cerebral control and the patient speaks. Arguing backwards, it was the pressure of the cerebral control, or in other words his will power, which prevented him from speaking, and we have caught him by a trick—and it seems to me rather an unworthy sort of trick. We have not attempted to get at the real underlying pathological condition, and we have, therefore, left the patient liable to develop again the same symptoms, with, perhaps, less cause than he had the first time.

I have not included in this series those tremulous cases of so-called "shell shock", whose outstanding feature was a general lack of emotional control and who are apt to suffer a relapse or an exacerbation of tremulousness after any Zeppelin raid; although some of the cases referred to showed these symptoms as well. One of the annoying symptoms is horrible dreams of bombardments and consequent night terror. Naturally what is in a person's mind all day, will influence his dreams at night, and I have never failed to see relief of these latter symptoms when I got the patient occupied and interested in the work shops. The deep cut mental impression of his terrifying experiences soon becomes dulled by the

superimposed impressions of healthy thoughts and interests. Still we find these patients jump every time a door slams even in the distance, although he knows it to be a door and nothing dangerous. It seems to me that such loss of control is perfectly analogous to the loss of control in the type of case we have been discussing—but one recognizes the greater difficulty in demonstrating to the patient that he can control himself if he only will. This difficulty has not, as yet, been satisfactorily overcome for all cases. While recognizing it as poor makeshift, I have found in these cases, that the mental incentive of a promised recommendation for discharge from the army as medically unfit as soon as they get control of themselves, works rapidly. After careful consideration of these cases, one is led to the conclusion that many cases might be prevented in their first development by the judicious entrance of a medical officer into the mental conflict, which may mean so much to the patient, on the side of his moral sense. Under the circumstances, it needs all the encouragement it can get.

Of course, it is necessary that men be sent as drafts to other battalions, but it is a point worth considering whether more care might not be given to make him feel at home and among friends as soon as possible after his introduction to his new battalion. Apart from the help the new draft will receive from the altruism inspired by being among men whom he feels will be friends, the desire to retain the respect of men whom he respects, will aid, to a greater or lesser degree, his moral sense in the conflict which may later on be waged in his mind.

Fortunately in the British Army, such extremes have not been necessary (and certainly at present, public opinion would not permit of resort to them—and it is devoutly to be hoped that there may never be occasion for it to change) but there appears to be no doubt that the Germans, with their usual logic combined with absence of sentiment, have, in their conscript army, been driven to supply such artificial aids to the self control of their men as an officer with a revolver behind; and the knowledge that there is a chance in going ahead, but no chance at all for him if he goes back unwounded—is a very certain crutch for his moral courage, which undoubtedly acts also on his instinct of self preservation.

One should always, however, realize that such individuals who are more than ordinarily suggestible, are such as the martyrs were made of, and, if their suggestibility be fully inspired by a great patriotism, or some other such enthusiasm, they may prove themselves capable of the greatest heroism.

DISCUSSION OF CERTAIN BORDERLINE PROBLEMS

A. Cholecystectomy *vs.* Cholecystostomy (with notes on Technique and Complications)

B. Treatment of Gastric and Duodenal Ulcer

C. Relationship of the Thyroid to Graves' Disease

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THIS paper is based upon critical studies of certain groups of operations performed by my associates, Dr. F. R. Bunts and Dr. W. E. Lower, by my associates at Lakeside Hospital, and by myself. Included in these studies were the records of 1,161 operations on the gall-bladder and ducts; 497 operations on the stomach; and 2,030 operations for goitre, this number including 845 for exophthalmic goitre.

A.—Cholecystectomy *vs.* Cholecystostomy (with notes on Technique and Complications)

In our series we have seen cases in which a small stone has caused unbearable colic and others in which a massive stone has caused no pain; we have seen a massive stone erode its way into the small intestine causing obstruction, or into the colon or stomach; we have seen the stone lying free in an abdominal abscess, or migrating into the liver, or into the swollen duct walls; we have seen stones in pockets, and the gall-bladder transformed into compartments; we have seen the common duct as large as the duodenum, or reduced to the diameter of a mere string of connecting tissue; in some aged patients we have seen gall-bladders of vast size, while in others it has been but a small cicatricial mass; in a lank individual we have seen a Riedel's lobe project the gall-bladder

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into the pelvis; and in a broad-chested individual, have found it as high as the nipple; but it is not our purpose to discuss the exceptional cases, but rather those that are commonplace.

In our earlier experience, we tried to save all gall-bladders, but we soon noted that after cholecystostomy it sometimes happened that after the patient had left the hospital with his wound healed, he suddenly experienced the familiar gall-bladder pain, accompanied sometimes by a chill and a sharp rise in the temperature, the pain in some instances being so intense as to demand a hypodermic injection of morphine. At the site of the old gall-bladder drainage scar there is first tenderness, then puffing followed by redness and in a few days there appears a free discharge of mucus, pus, and debris, later followed by bile. After this the symptoms promptly disappear and the wound heals speedily. Later on this cycle may be exactly repeated. We soon found that this sequence occurred in those cases in which the infection had caused either thickening of the gall-bladder wall, or scar tissue and intermittent occlusion of the cystic duct; in cases in which the infection had extended into the crypts of the gall-bladder; and in cases in which stricture of the cystic duct had resulted from a decubitus caused by an imbedded stone; and in which the gall-bladders were large, white, thick-walled, and filled with thick mucus, brown debris, and sterile pus—a condition which usually appears in aged subjects. In safe risks, therefore, we excised the gall-bladder in these types of cases.

On the other hand, in cases of simple gall-stone colic, in which the gall-bladder and ducts are normal and no infection is present, we drain only. In addition, we employ only drainage, not excision, in grave hazards, such as cases of acute infections that do not clear up; or of gangrenous gall-bladders which are not easily removed; in extremely obese patients; in advanced age; or in the presence of hazardous chronic disease, where cholecystectomy is contra-indicated. In many of these cases, however, the cholecystostomy is later followed by cholecystectomy, after the acute storm has passed or after the margin of safety has been increased. In other words, in some cases the gall-bladder is saved because it is too good; in others, because the condition of the patient is too bad; that is, we do not kill the patient to relieve him of his damaged gall-bladder. Experience teaches us that after excision, however carefully planned, and after drainage, occasionally the symptoms will recur and in some cases a secondary operation may be required.

There is no majestic finality of judgement in cases of biliary

stone or infection any more than in cases of stone or infection of the kidney or ureter.

In the technique of cholecystectomy, the risk of injury to the common duct under certain conditions cannot be ignored. When expedient, the cystic duct is plainly isolated by dissection, tied and divided; the vessels being then separated and divided. In fat obscure fields, the simple expedient of splitting the gall-bladder down to its lowest point is a splendid guide. If even a small amount of gall-bladder is left next to the cystic duct, a diminutive gall-bladder not only may form, but, moreover, may assume the prerogative of the normal adult gall-bladder, viz.: become infected and develop a stone. I have seen instances of both these events. In the case of common duct stone with a shrunken infected useless gall-bladder, in which I had excised the gall-bladder and from a position close to the common duct had extracted a tight fitting stone which had caused decubitus and infection, several months later a complete stricture of the common duct appeared. In this case, I mobilized the duodenum, opened it, excised the strictured common duct and brought the hepatic duct into the duodenum. For six years the patient has remained well.

In cholecystostomy the drainage question is quite settled; not so in cholecystectomy, however, for in the latter, when anterior drainage is used, occasionally fluid will accumulate in the right kidney pouch or between the diaphragm and liver. This condition is betrayed by interrupted convalescence; a little fever; some pain; and slight tenderness. This problem has been met by adopting unreservedly Rutherford Morison's method of drainage, which consists in a lateral opening at the bottom of Morison's pouch, and a double drain, one connecting with the sub-phrenic space above the liver, the other lying below the liver, the abdominal incision being completely closed.

The immediate operative result is controlled by means of an ample exposure through a vertical incision, this being further amplified by a transverse incision, if required; by gentle handling; by knife dissection; by nitrous oxid anæsthesia with a minimum amount of ether when required; by avoiding tight stitches; by encouraging moving about in bed; by the pre- and post-operative use of an abundance of water; by the administration of glucose and sodium bicarbonate solution administered by the Murphy drip, and by the infusion of normal saline solution. Finally, be it remembered that cholecystectomy following cholecystostomy is one of the safest of all operations; first, because the patient may be

operated upon at the optimum point as regards risk; second, because during the interval between the first and second operations, the immunizing forces are mobilized in the operative field.

In brief, my conclusion is that the indications for cholecystostomy and for cholecystectomy are similar to the indications for nephrectomy and for pyelotomy in cases of kidney stone. Whether or not we shall remove a kidney depends on the existing condition; on the same basis we decide whether or not to remove a gall-bladder. If any gall-bladder, which is normal excepting for the presence of a stone, is excised merely on the basis that some gall-bladders have later trouble, then *all* gall-bladders and *all* kidneys would be excised. We believe that the ultimate decision must be made at the time of operation, this decision being based on the personal experience of the surgeon, the state of the gall-bladder and the condition of the patient. Both the gall-bladder and the patient should have a fair hearing and each is entitled to an unbiased judgement.

In our clinic, in consequence of our policy to individualize each case, cholecystectomies and cholecystostomies are now about equal in number.

B.—Treatment of Gastric and Duodenal Ulcer

The prime question in a consideration of the treatment of gastric and duodenal ulcers is this—shall they be treated by surgical methods alone, by medical measures alone, or by both combined? This question of medical treatment was not considered in our discussion of the treatment of infected gall-bladders, but it must be raised here. Ulcers of the stomach or of the duodenum are not so definitely cured by operation alone as are gall stones. Therefore, we must modify our course of treatment accordingly. My own conclusion is that if a patient possesses the necessary spiritual and financial qualifications, then a fair trial of non-surgical treatment with controlled alkalizing frequent feeding should be tried and tried faithfully. More and more am I prone to consider that the surgical results are due largely to the physiologic rest and the alkalization of the gastric contents. The end results are in no small degree dependent upon the extent to which the physician gains control over the patient—the patient gets out of the treatment what the physician puts into it of time, intelligence, and persuasion. It is interesting to note that after gastroenterostomy, most patients tolerate only small doses of alkalies. I attribute this

to the fact that alkali enters the stomach *via* the new stoma as has been shown by Paterson.

If medical measures fail, then assuredly in view of the probability of cancer, of hæmorrhage, of perforation, ulcers should be dealt with surgically. Even after surgical treatment, however, it is imperative that diet and medication be strictly controlled by the attending physician for a year at least. The ancient practice of employing an orator to enforce the following out of directions by eloquent persuasion may well be profitably renewed here.

The operation is now safe—for including resections for cancer, the mortality rate is below 3 per cent.; and for gastroenterostomy alone it is less than 1 per cent. The problems are purely technical—hæmorrhage and leakage are absolutely controlled by the cobbler stitch; and the vicious circle may be eliminated in every case but the excessively fat mesocolon by mechanical adjustment and in the excessively fat by a modified Roux operation. Bad risks are controlled by a two-stage operation; anæmic cases by transfusion of blood; impending acidosis by water and alkalization; all cases are made more secure by light nitrous oxid anæsthesia and by anociation; while pneumonia is prevented by free moving about and sitting up in bed, by anointing the chest, and by the use of a warm water mattress on the operating table.

In seriously starved cases of gastric ulcer, Professor von Eiselsberg's method is excellent. A jejunostomy is first performed under local anæsthesia, the final operation being delayed until a safe margin of vitality has been established by feeding. Incidentally, the prolonged gastric rest usually cures the ulcer. Gastroenterostomy alone gives a rather light morbidity and mortality as compared with gastrectomy, as in the former the wound is not as extensive as in the latter operation, and the physiologic and anatomic adjustment is more readily made. The readjustment being accomplished, the gastric resection is performed with a wider margin of safety. Thus, by dividing the trauma and relieving the patient from the simultaneous burdens of extensive wound recovery and physiologic adjustment, the risk is decidedly less than when one massive chance is taken.

Rather by accident I have obtained a remarkable proof of the process of repair which follows gastroenterostomy, and also, as I am bound to infer, occurs in cases in which medical treatment has proved effective. In four instances in which in greatly emaciated patients the diagnosis of cancer has been made, it was deemed prudent to perform the operation in two stages, the first a gastro-

enterostomy, the second to have been resection. In each of these cases, upon opening the wound for the second operation from six to seventeen days after the primary operation, no trace could be found of the large obstructing mass. In one case, the site was removed and examined microscopically and it was found that only a slight excess of fibrous tissue remained as witness of the ulcer mass. In these cases, if the resection and the gastroenterostomy had been performed in one séance, not only would there have been an unnecessary hazard as to life, but a needless operation would have been performed. These cases show that an absolute differential diagnosis between ulcer and cancer cannot be made by the surgeon either before or at the operation; and that in certain borderline cases even the diagnosis of the pathologist is not final—just as in cases of leg ulcer the pathologist cannot tell whether the displaced epithelium is coming or going. If the growth be penetrating, it is cancer; if produced merely by a normal healing process, it is not cancer. In certain borderline cases, the submission of specimens to equally competent pathologists has elicited diverse opinions.

If the patient is dismissed from the surgeon's care to the same habits of life and the same dietetic carelessness that existed when the ulcer originated, and if in certain cases mouth infections and teeth defects are uncorrected, then there is bound to result a certain percentage of failures. It is just as illogical to exercise no care over a post-operative ulcer patient as it would be to dismiss a post-operative exophthalmic goitre patient without therapeutic instructions and prolonged oversight.

The Control of Gastric Hæmorrhage. In every case of severe hæmorrhage, whatever its cause, the transfusion of blood is the ideal remedy, for the transfused blood not only replaces the lost blood, but in many instances it also overcomes the blood defect which was the primary cause of the continued hæmorrhage.

In cases also in which the vitality of the patient has been greatly reduced, the margin of safety may be widened by transfusion. In hæmorrhage from gastric or duodenal ulcer, its immediate arrest may be accomplished by utilizing the following great principle in biologic adaptation:

As a defence against death from hæmorrhage a mechanism has been evolved for increasing the coagulation of the blood as the death point approaches. Increased coagulation with a normal circulation would hazard life as the clot might be washed along as an embolus, but with the low pressure and the faint circulation

near the death point, clotting becomes safe. As in phylogeny, hæmorrhage was the preëminent cause of death and of unconsciousness, this defence mechanism may be called into action by any cause that lowers the blood pressure or even by the fear of catastrophe, or by the sight of blood, and the similitude of the pre-death point is produced, namely, unconsciousness or *fainting*. It is logical, therefore, to utilize the fainting point clinically as an indication that the blood pressure is sufficiently low for the hæmorrhage to be safely arrested by coagulation.

The patient being kept under continuous observation and control, an attempt is made to bring him to the fainting point by having him sit upright in bed. If the upright position does not produce blanching, a thready pulse and a moist forehead, then the blood may be sequestered in the extremities by adjusting a tourniquet around the thigh just tightly enough to block the venous but not the arterial flow. In this way enough blood may be tentatively removed from the general circulation to reduce the blood pressure until the fainting point is reached. The length of time this point should be maintained is empyric, but a brief period is sufficient to assure the formation of a secure clot at the bleeding point. Not only are the open blood-vessels plugged but the patient has left in his body plenty of blood to flood the blanched brain when the bandages are released and the posture altered. Thus we evoke the last ditch defence as seen in the death point arrest of hæmorrhage in typhoid, in tuberculosis, in extrauterine and birth hæmorrhage. We beat death by saving the blood—we eat the biologic cake and save it too.

C.—Relationship of the Thyroid Gland to Graves' Disease.

In considering the cases of Graves' disease which have been surgically treated in the Lakeside clinic we have found that three facts stand out preëminently: first, in every instance the thyroid was enlarged; second, the histologic changes in the thyroid were neither constant nor characteristic; and third, in every instance, resection of the thyroid improved or cured the disease. In view of these facts, how shall we decide whether or not hyperplasia of the thyroid is a characteristic of Graves' disease.

A study of the cases at the Lakeside clinic shows that the percentage of occurrence of hyperplasia varies from year to year. The presence of hyperplasia apparently depends upon the intensity of the disease, its duration and the stage of the disease at which

the operation was performed—whether before or at the height of the hyperplasia; whether after the hyperplastic stage has been succeeded by the colloid stage; or whether, on the other hand, the drive has been so intense that the thyroid cells themselves had been destroyed, so that the gland consisted almost entirely of fibrous tissue, in which case no hyperplasia existed. It is true, however, that the clinical signs enable us to predict the histology correctly in 90 per cent. of the cases. It should be added that in our clinic we do not recognize thyrotoxicosis but classify all cases as Graves' disease.

That hyperplasia is not a characteristic of Graves' disease is shown further by the following facts:

(*a*) The excision of a sufficient amount of a colloid goitre or of an adenoma in a typical case improves or cures the disease just as it is cured or improved by the excision of a hyperplastic gland. It must be added, however, that as a rule the most striking relief comes after the excision of the hyperplastic gland in cases in which the duration of the disease has been short but intense. Nevertheless, the degree of surgical relief is independent of the histology of the gland.

(*b*) Although in Graves' disease the most intense hyperplasia may be found in exceptional cases, on the other hand among the total number of hyperplastic thyroids which at this moment exist in the United States and Canada, only a small percentage are incident to Graves' disease. In most pregnant women, in many adolescent girls, in a large proportion of advanced cases of tuberculosis, and in numerous cases of intense prolonged pyogenic infection, the thyroid is not only hyperplastic but the histological picture is identical—no one could look back through the microscope and say this is the hyperplasia of Graves' disease, this of pregnancy, this of tuberculosis—and there are a few cases in which hyperplasia has followed the excision of too much thyroid gland and no iodin has been given. On the other hand, in only from 50 to 75 per cent. of the cases of Graves' disease, a negligible group compared with the groups enumerated above, is the thyroid hyperplastic. We are forced to conclude, therefore, that hyperplasia of the thyroid is no more the cause of Graves' disease than it is the cause of pregnancy or of tuberculosis or of adolescence. In each case hyperplasia is an end effect, not a cause. But here the analogy ends, for although resection of the thyroid does not end pregnancy; does not assist adolescence; does not cure the infections; it does mitigate or cure every case of Graves' disease.

Why does surgery mitigate some cases and cure others—why are there occasional relapses? It is in this inquiry that we shall find our best cue to the relationship of the thyroid to Graves' disease, and to the reason why the disease is so strongly controlled by surgical measures.

In our case histories we find that in the cases not wholly relieved or in which partial relapse occurred after temporary relief, the causes of the relapse may be roughly classified as follows:

(*a*) *Psychic Drive.* In this class we find patients who have been threatened with the loss of or have lost positions of importance and have no other means of support, especially if they have others dependent upon them. Among these are daughters with dependent mothers, the relapse occurring when the loss of the position is threatened. Relapses appear among teachers, stenographers, telephone operators, etc., but are rare, as is the occurrence of the drive, among those who earn their living by physical labour—laundresses, cooks, scrubwomen. The more intense the struggle of man against man, the more difficult it is to cure Graves' disease completely. The disease is rarely found in the degenerate, or in idiots, or in moral defectives.

As an experiment, I sent some patients, whose disease had grown on the soil of the struggle against want and poverty, to a pleasant sanatorium, and relieved their financial strain through the assistance of a philanthropic patroness of the hospital, thus blocking the human relations drive. These patients, in their rapid convalescence and complete cure contrasted strikingly with those still swimming against the stream. Unhappily this beneficent prescription can be filled too rarely.

Other causes of a psychic drive, which we have seen cause relapse during the early months of convalescence, are the sickness and death of parents or children; financial disaster; exposure to grave danger, as a railway wreck, a fire, etc. I have had operative recoveries in which each of these misfortunes has occurred in the early months of convalescence, causing serious relapses.

(*b*) *Acute Infection.* In some cases of Graves' disease, convalescence has been delayed, the patients have been made worse or have shown sudden relapse as the result of tonsillitis, an acute cold, a tooth abscess, acute appendicitis, mastoiditis, diphtheria, etc.

(*c*) *Intestinal auto-intoxication.* Intestinal auto-intoxication occurs in the more chronic type of Graves' disease, and strictly speaking is not a cause of relapse, but rather a continued exciting

primary cause. Unless the auto-intoxication is recognized and controlled from the beginning, only a partial relief may be expected.

(*d*) *Pregnancy.* Conception usually does not occur until Graves' disease is well in hand, but in some of my cases pregnancy has provided the drive that produced the relapse. With the termination of the drive by childbirth, the disease has subsided just as it subsides on the release from strain and worry, when an abscess is opened, etc.

(*e*) *Adolescence.* Graves' disease in the midst of the drive of adolescence presents a difficult problem, for whereas the drive of an acute infection, of a financial reverse, of hard work, of the danger of losing a position, of the illness or death of relatives, are all controllable, the drive of adolescence is not controllable and operative results in the adolescent period are correspondingly less favourable.

We can see clearly, therefore, that the degree of completeness of the cure of Graves' disease, assuming that adequate surgical measures have been employed, depends upon the presence or absence of the forces that are capable of inaugurating the disease. In exophthalmic goitre we see the symptoms come and go as the stimulating forces of the internal and external environment ebb and flow; and in consequence we see the ebb and flow of the blood supply and of the size of the thyroid. Now since the thyroid has no physical connexion with the outer environment excepting through the mediation of the sense organs and the nervous system, it follows that the thyroid changes are end-effects, not primary causes. If the driving organ, the brain, is undriven, the thyroid is quiescent. In Graves' disease the entire energy-transforming mechanism has been speeded by some driving force in the internal or external environment, and for some reason the acceleration continues even after the original driving force is withdrawn. Man's motor mechanism being automatic, there must exist inhibitors as well as accelerators, but in Graves' disease the mechanism is in a state of continuous self-acceleration from an, as yet, not understood defect. Once equilibrium is established over a period of time, by rest, by changing environment, or by operation, improvement or cure follows.

Now, the thyroid's primary, perhaps only function, like that of the adrenal, is the fabrication, storage and adaptive discharge of an activating chemical agent, just as the brain cells fabricate action currents. Speeding up any one of these three activators—the brain, the adrenals, the thyroid—speeds up the whole mechan-

ism. If the activity of any one is depressed, then the activity of the whole mechanism is depressed. No one of these organs can substitute for any other. Therefore, in that curiously altered state of the kinetic system in which even after the excitement is withdrawn, there remains an automatic speeding, if an essential link, like the thyroid, be depressed by operation, by so much will that great automatic drive, Graves' disease, be decreased. Quite obviously, the relief afforded by the removal of the thyroid gland could be equally well afforded by breaking any other link in the kinetic chain. The excision of a corresponding amount of the adrenals should be as effective. If a patient with Graves' disease could hibernate for a season, the disease would undoubtedly be cured; and we cannot doubt that it would be mitigated or cured by acute cerebral softening. By resecting the thyroid, therefore, we are simply checking the automatic speeding of the mechanism by breaking the most accessible link in the kinetic chain.

We conclude, therefore, that the exciting causes of Graves' disease are environmental stimuli; that although the thyroid shows no consistant histologic lesions, and although the disease does not originate in the thyroid, nevertheless the thyroid plays a necessary part in the disease process; that surgical treatment exerts a specific effect upon the progress of the disease, but that maximum results demand a combination of surgical and medical methods.

ANNOUNCEMENT is made by Dr. M. M. Seymour, Commissioner of Public Health of the Province of Saskatchewan, that on and after September 1st of this year, free distribution of diphtheric antitoxin will be made by the provincial bureau of public health.

Editorial

THE MONTREAL MEETING

AFTER a period of two years during which no meetings were held, the forty-eighth annual meeting of the Association was held at Montreal, June 13th, 14th, and 15th. It would appear from the generous support given to this meeting by the profession that in omitting the meetings of 1915 and 1916 the Executive Council erred perhaps on the side of undue timidity. The registration exceeded 300, which even for peace times would have been well up to the ordinary standard of attendance. Of the total registrations 70 were new members. From Ontario there were 95; from Quebec 149; of whom 120 were Montrealers. Each of the other provinces sent its quota. As was to be expected, owing to the distance and other causes, the number from the western provinces was small.

The quality of the programme was exceptional. The addresses in medicine, surgery, and public health, were of the usual high standard. The address in medicine, by Dr. Theodore C. Janeway, an old friend of many of our members, was indeed a scholarly effort, and certainly ranked with the best ever given before our Association.

A crowded audience greeted Dr. Shepherd, whose address, "Past and Present," was listened to with the closest attention and evident appreciation.

Dr. Charles J. Hastings, of Toronto, gave a most interesting address in public health. A large number of the laity of the city showed their interest in public health matters by attending.

Each section had an abundance of splendid papers. In

some perhaps there were too many, the overcrowding being more noticeable on the first day. Some especially good papers were read in the section of surgery, notably that by Dr. J. H. Cotton of Toronto on the new ether. In the larger sections of medicine, surgery and obstetrics, there was a large attendance, while in the other sections it was well up to the average.

Most of the contributors to the programme were Canadians, but several good papers were given by our friends from across the line. Several prominent men who had promised papers were at the last moment unable to come by reason of having received orders to join their military units. Amongst these were Dr. Thomas McCrae, of Philadelphia, and Dr. J. J. MacKenzie, of Toronto.

Special interest was shown in the public health section in which a large number of interesting and instructive papers were read. Some very important problems in social service work were discussed and strong resolutions were adopted on such important subjects as the control of venereal diseases, the formation of a Federal Bureau of Public Health and the establishment of a Department of Hygiene and Physical Education. A most important suggestion was made by the chairman of the public health section, namely, that the Public Health Association of Canada be asked to associate their organization with the public health section of the Canadian Medical Association. This suggestion received the approval of the Executive Council, and subsequently was approved by the general session. The fusion of these two public health organizations will, if accomplished, undoubtedly greatly strengthen the hands of our Association in this most important branch of its activities.

The attendance at the general sessions was not all that could be desired. This was no doubt partly due to the fact that the time alloted to this part of the programme was not entirely satisfactory. At the same time we would urge that more attention be paid by our members to the general busi-

ness of the Association. It is unquestionably most desirable that at future meetings a definite time be assigned for the meetings of the general session, when all will be free to attend; and also that the Committee of Arrangements take means at the time of the meeting to impress upon the members the importance of taking an active interest in the business of the Association.

Quite a feature of the meeting was the banquet at the Ritz-Carlton Hotel. Apart from the luncheons given in the College this was the only gathering of a social character, and the fact that well over half the members present attended, demonstrated its popularity. The chief attraction of the occasion was unquestionably the President's address. Dr. Blackader touched upon many problems which to-day face the profession in general, and the Association in particular, and indicated clearly how these problems should be met. At the close of the banquet the President received the congratulations of those present upon the clear and concise way in which he had dealt with these questions.

In response to an invitation from the Winnipeg Medical Society, that city was chosen as the next place of meeting, Vancouver still foregoing its claims. Dr. James McKenty was elected President, and in his hands we may safely leave the fortunes of the 1918 meeting. The Montreal meeting, undertaken with considerable hesitation, has demonstrated beyond peradventure that he may count upon the loyal support of the members of the Association.

We are requested to state that President Blackader, and the members of the Committee of Arrangements, desire to extend to all those who attended and helped to make the Montreal meeting the success it undoubtedly was, their most sincere thanks.

THE ADDRESS IN SURGERY

THE Address in Surgery of this year's meeting of the Association was a noteworthy one as coming from the doyen of Canadian surgeons, one who has borne a reputation second to none in our country. It was noteworthy also as coming from a man who has been almost as widely known for his knowledge of art and his wide reading and general culture, as for his surgical attainments. We are reminded of a saying of the late von Mikulicz, who on giving up his work said to a friend, "I have no grudge against life. I have worked hard, but my work has found recognition." It may not be presumptuous to think that Dr. Shepherd might rightly adopt these words for his own.

Turning to the Address itself, one finds, as one would expect, many things said, many opinions expressed, that derive an interest from and demand the attention due to his long experience. Once again he tells us in the written word, as often before in the spoken word, that we should stand in Canada more firmly on our own feet in medical matters, and that we should give more encouragement to the work of our own people. As a step further, he suggests that we should have our own Royal College of Surgeons, affiliated with that of Great Britain. The remark is obviously true and wise. We ought certainly—those who have ambition and do proper work—to be able to write after our names, F.R.C.S. (Canada) instead of or in addition to the recent F.A.C.S. of our neighbours to the south. This attitude, however, need not be chauvinistic. We can also prize the opportunity so freely offered by the Americans, of associating ourselves with all their endeavours towards a higher level of scientific surgery.

Dr. Shepherd goes on to give a most interesting, if somewhat summary, review of the big advances in surgery that he has seen in his long experience. How keen his interest still is in matters surgical can be seen in his references to the

modern work of the war in the matter of antisepsis and shock. He has been a great reader and is still reading.

To refer in detail to all the points of interest which he takes up in the Address, would occupy far too much space. The original, we are sure, will be read by everybody with pleasure and instruction. We hope that this will not be the last time that Dr. Shepherd will address the Association.

MODERN CONCEPTION OF PUBLIC HEALTH ADMINISTRATION

THOSE who heard the public address on State Medicine by the Medical Officer of Health, of Toronto, were no doubt convinced that the section on state medicine made no mistake in their efforts to present to the public a modern public health administration. The Canadian Medical Association, representing as it does the medical profession from all parts of the Dominion, was desirous of going on record as having recognized its responsibility to the nation in life saving, disease prevention, and the development of the physical fitness of our people. We have recently been hearing and reading much about the future of preventive medicine. Dr. Hastings has given us an outline of the present activities of this branch of medicine as embraced in the organization of the Department of Health in Toronto.

The duties of departments of health were necessarily very circumscribed until the science of bacteriology placed their work on a scientific basis, which was necessary in order to indicate the desired modes of action. It has become apparent that, if this knowledge of bacteriology or the principles indicated by it are to be efficiently executed, the public must be educated.

It was quite apparent that, in the mind of the speaker, the future of preventive medicine teems with almost limitless possibilities; that the education of the public to the necessity of greater activity was creating a wholesome, social unrest that would soon prompt the public to demand, if diseases

were preventable, that they be prevented. The awakening of the public conscience is in itself a guarantee of greater activities.

The speaker emphasized the importance of industrial diseases and industrial hygiene, and the toll exacted by industrial diseases every year, most of which are preventable. Reference was also made to the wastage, oft-times in the most productive period of life, through the wasting diseases of middle life, much of which might be prevented or postponed by changed methods of living. More than a passing reference was made to the unpardonable neglect of duty of administrators of public health as regards the control of venereal diseases.

Emphasis was placed on social service as a solution of the social problems in the homes, which can only be solved by a proper follow-up system and reference to responsible social agencies—the social problems frequently constituting basic factors in the production of disease. Modern organizations of public health embrace the conditions necessary for social uplift, and thus render a service to the people.

Probably one of the strongest notes struck by Dr. Hastings in his address, was his reference to health insurance, which points the way to an ideal public health service. The urgent need for a more efficient method of dealing with the problem of the wage earner's health, and a means by which the burden of responsibility can be placed where it belongs and at the same time stimulate coöperation of all concerned in its solution, is apparent. Health insurance is the most feasible measure, inasmuch as it is the method by which the cost of sickness is distributed amongst those oft-times responsible for the conditions causing the sickness, namely the employer, the employee and the government or the municipality, and thereby the burden upon the individual is lightened. Furthermore, it gives a financial interest in the prevention of sickness to those who are responsible for the conditions causing it.

UNIVERSITY HOSPITAL UNITS

"THE regiment never dies!" The individual life may be sacrificed but the glory of heroism remains. It becomes an attribute, an ideal that each generation strives to uphold; the heritage of every member of the regiment. Such a tradition naturally engenders an *esprit de corps*, which is possible only in a permanent body or organization. A military unit which will be broken up at the end of a campaign or whose *personnel* is constantly changing lacks that inward cohesion that is so essential. It was a realization of this truth that led the universities of Canada, soon after the beginning of the war, to request permission to send overseas hospital units composed of men from a particular medical school, men with common ideals and traditions, acquainted with each other and bound together by a love for and a desire to add to the honour of their Alma Mater.

In a recent issue of the *Times* it was suggested by Lieutenant-Colonel Sir James Fowler that hospitals should be named after the schools, college, university, or town from which the personnel had been drawn and which formed the bond uniting the individual members of the staff to one another. The proposal has found favour with the War Office and permission has been given to try the experiment. A Middlesex Hospital unit is to be mobilized under the direction of Sir James Fowler. The officers of the unit will be Middlesex men, the matron, sisters and nurses will be chosen from those trained at the Middlesex Hospital, and the V.A.D. nurses will be selected from families connected with that institution.

As far as the British Overseas Forces are concerned, however, the idea cannot be considered a new one. It was in the autumn of 1914 that the authorities of McGill University applied to the Department of Militia for permission to form a McGill Military Base Hospital for overseas service. The necessary permission was accorded and, at the beginning

of 1915, mobilization of No. 3 Canadian General Hospital (McGill) was commenced. The personnel was chosen from the staff and students of the medical faculty of McGill University, and the nursing sisters from the hospitals connected with the University. Colonel H. S. Birkett, C.B., dean of the faculty of medicine was appointed to the command of the unit and is still with the hospital in France. A similar offer made by the University of Toronto was accepted in February, 1915, and mobilization of No. 4 Canadian General Hospital was at once begun, the personnel consisting of members of the medical faculty of the university, and the officer commanding being Lieutenant-Colonel J. A. Roberts. In March, 1915, as soon as the necessary permission could be obtained from the military authorities, a hospital unit was also mobilized by Queen's University. This was No. 5 Stationary Hospital, Lieutenant-Colonel Frederick Etherington being the officer in command. Upon arrival in England this unit was enlarged and converted into No. 7 Canadian General Hospital (Queen's).

Other universities were equally anxious to do their share in providing units for overseas service. No. 7 Stationary Hospital, C.E.F., was given by Dalhousie University in 1916 and was placed under the command of Lieutenant-Colonel John Stewart, professor of anatomy in the university. No. 10 Stationary Hospital was mobilized by Western University and commanded by Lieutenant-Colonel Edwin Seaborn, associate professor of clinical surgery and lecturer in surgery at Western University. The St. Francis Xavier unit, No. 9 Stationary Hospital, was mobilized and proceeded to England under the command of the late Lieutenant-Colonel Roderick C. McLeod, whose death unfortunately occurred at Bramshott. The unit is now under the command of Major H. E. Kendall. The Laval University Hospital was mobilized in Montreal as No. 6 Stationary Hospital, but was enlarged subsequently and designated No. 8 Canadian General Hospital. This unit is under the command of Lieutenant-

Colonel G. E. Beauchamp, of Montreal, and is at present stationed at Vincennes, near Paris. Offers of hospital units were also made to the military authorities by the Universities of Alberta and Manitoba, but were not accepted.

Not only were these hospitals mobilized by the various universities but large sums of money were given voluntarily for their equipment, which was complete to every detail. Moreover funds were established for maintenance and any further equipment that might be necessary.

The success that has attended the university medical units sent by Canada across the seas, and the enviable reputation they have established in France, in Egypt, and at Salonica, often under adverse and trying conditions, give us faith in the success of the Middlesex unit, and the proposal made by Sir James Fowler that such units should be given a permanent place in the medical services of the Empire, and be known by the name of the institution or place from which they originated, will find a ready echo in the hearts of Canadians.

THE VENEREAL DISEASE PROBLEM

DURING recent years we have witnessed crusades, popular as well as scientific, directed toward the solution of many problems of interest to the public health. The investigation and control of the acute infectious diseases, tuberculosis, cancer, poliomyelitis, the feeble-minded, alcoholism, industrial diseases, have all come up for consideration. Much energy has been expended and undoubtedly important practical results have been accomplished. It has therefore been a matter of surprise that the greatest scourge of humanity, moral as well as physical, should so long have escaped the public attention which its importance to the nation demands. This has in part been due to a spirit of hopelessness in attacking a problem of such magnitude, involving family and social relations, the control of prostitution, alcoholism and other contributory factors, marriage regulation, even the housing problem, wage earning and other

economic questions. Besides there has been a certain prudishness on the part of both the medical profession and the public, as well as certain moral considerations, which have stood in the way of dealing with sexual diseases with the same deliberation and scientific candour as with other great public health questions. Even before the war, however, it was evident that something would have to be done to abate a scourge fraught with grave danger to the state, and events since that time have only served to impress every thoughtful person with the increasing urgency of intelligent and aggressive action.

Those present at the International Medical Congress in London, in 1913, will agree that venereal disease was the subject of outstanding importance, and one of the first practical results which followed that meeting was the appointment of a Royal Commission to consider and report upon it. The report of this Commission has appeared during the past year, and while of great value, yet one cannot read it without being convinced of the paucity and inaccuracy of the statistical and other data at present available. This is very clearly shown by Sir William Osler in his recent Lettsomian lecture.

The discovery of the spirochaeta pallida as the cause of syphilis; the introduction of the Wassermann reaction and the investigation of the spinal fluid, emphasizing the wide-spread and intractable nature of the infection and its definite relationship to other systemic diseases; and the addition of diarseno-benzol to our list of remedies, have all stimulated an unprecedented amount of research and produced, during the last decade, a new literature which has practically scrapped previous knowledge, and is helping to establish the whole matter on a new and more scientific basis.

While most attention in recent years has been directed towards syphilis, yet as Osler points out, the gonococcus, though not a great destroyer of life, is yet the greatest known

preventer of life, conservative estimates stating that 50 per cent. of sterility in women is due to this cause.

The incidence of venereal disease in the community at large, as well as in hospitals, has recently been studied by many investigators. The results obtained naturally have shown wide variations in urban and rural communities and in hospital practice. Accurate statistics are not yet available, but all are agreed as to the prevalence of infection. It is important, however, to avoid unnecessarily alarming the public by overstatement.

The apparently greater prevalence of venereal disease shown by recent statistics is probably accounted for more by refinement in our methods of diagnosis then by their actual increase in the community. While wars in general, have been associated with an increase of these diseases, yet there does not seem sufficient warrant for the alarming statements appearing from time to time in the lay press regarding venereal disease among our soldiers at the present time. In this connexion we are glad to read the reassuring statement made by Mr. Foster, financial secretary to the War Office, in the British House of Commons, February 28th, 1917, that "it should be generally known that the venereal rate in the army to-day is no higher than it is in ordinary times of peace". There should be no attempt either to exaggerate or to minimize the seriousness or urgency of the venereal disease question, but to deal with it in a sane manner on the basis of facts established by accurate investigation.

The venereal disease problem is one in which the medical profession should lead in educating public opinion and in influencing the course of legislation. With this end in view, it is necessary that medical societies should have competent committees at work to collect information and that these, through our national and provincial associations, should endeavour, as far as possible, to bring about uniformity of action throughout the Dominion.

As it is essentially a public health question, it would

appear best to have it under the control of the various provincial boards, which already have organizations ready to carry out the work. This is the course which has been adopted in Great Britain and one which will obviate any undesirable duplication of machinery and division of authority.

The compulsory notification of cases is a matter which will give rise to difference of opinion, but it is difficult to see how these, any more than any other contagious diseases, can be effectively controlled without it.

The same statement applies to compulsory treatment, with segregation of patients where necessary. The latter will necessitate the opening of hospitals for the reception of these diseases and suitable provision being made for their diagnosis and treatment. In this connexion properly organized out-patient clinics can serve a most useful purpose.

As many of the victims of venereal disease belong to the indigent class, it will be necessary to provide for free diagnosis and treatment, though indiscriminate pauperization should be carefully guarded against. It would therefore be advisable, in line with the policy already established in the case of serums and vaccines used in the treatment of other infective diseases, that expensive remedies such as diarseno-benzol, should, where possible, be manufactured in the laboratories of the Boards of Health, so as to reduce the increased expense attendant on their purchase from private manufacturers.

As there would be strong objection on the part of private patients to expose themselves to unnecessary publicity, it is obvious if we are to avoid concealment of infection, that the medical profession as a whole should coöperate in carrying out any organized campaign, and that therefore the necessary facilities for instruction, diagnosis and treatment be placed as fully as possible at their disposal.

Legislation should be sought to prevent the otherwise inevitable exploitation of these patients by unqualified practitioners and quacks, and advertising in the lay press should be rigidly controlled.

The whole venereal disease problem was discussed in the Public Health Section of the Academy of Medicine, Toronto, in January last, and as the result, a representative committee of the Academy was appointed to consider the question. The following report was submitted and adopted:

WHEREAS the problem of venereal disease which recent investigations have shown to be widespread in this country, has not received consideration commensurate with its importance,

THEREFORE BE IT RESOLVED that the Academy of Medicine, Toronto, urge upon the proper authorities that the following action be taken to combat this menace:

I. That an educational campaign be actively carried on by
(a). The Provincial Board of Health,
(b). The universities and medical schools providing more adequate teaching of the subjects of syphilis and gonorrhoea.
(c). The medical faculties of the various universities and medical colleges throwing open their lectures and clinics on venereal disease to practitioners of medicine.
(d). The teaching of the subject of venereal disease to the general student bodies of the universities.

II. (a). That all general hospitals situated in cities and receiving government aid shall provide or arrange for the diagnosis and treatment of venereal disease.
(b). That all standards of laboratory diagnosis be under the control and direction of the Provincial Board of Health.
(c). That the Province be divided into districts each to be served by a laboratory or laboratories designated by the Provincial Board of Health for this purpose.
(d). That the Provincial Government be asked to set aside $10,000 to be administered by the Provincial Board of Health for remuneration for services and equipment in conducting these laboratories.

The Committee afterwards waited upon the Provincial

Government, which cordially received the recommendations made and set aside $10,000 for the initiation of the work.

ANNOUNCEMENT is made of the publication in England of a periodical entitled *Recalled to Life*, which will be devoted to the discussion of matters affecting the welfare of disabled soldiers and sailors. The editor is Lord Charnwood and the periodical will appear every two or three months.

THE regulations recently adopted in the Province of Saskatchewan, impose a penalty varying from fifty to two hundred dollars upon every person who purchases or sells intoxicants, or any mixture, compound or prescription which contains liquor in excess of the amount required to render soluble or preserve the ingredients used, for other than sacramental or medicinal purposes. Liquor for bona fide purposes of manufacture can be obtained only upon production of a written permit from the Attorney General.

AT a special meeting of the Toronto Academy of Medicine on July 10th, the following resolution was passed unanimously: "Whereas it has always been the custom to have wounded and invalided soldiers retained under military regulations until discharged, and treated professionally by physicians and surgeons responsible only to the military authorities; and whereas in Canada a plan has been followed whereby wounded and invalided soldiers are placed under the professional care of physicians and surgeons, who are made responsible to a civilian commission; and whereas the hospitals for the care of returned wounded and invalided soldiers, instead of being under the control of the Militia Department, have been placed under the control of the Military Hospitals Commission; and whereas up to the present the Commission have not assumed full control of these hospitals

inasmuch as the medical care of the patients is still, to a large extent, under medical officers responsible in part to the military authorities and in part to the Military Hospitals Commission, there exists a state of dual control which is eminently unsatisfactory, and does not ensure provision of the best treatment available for the soldiers; therefore be it resolved, and it is hereby resolved, that in the opinion of the Academy of Medicine, Toronto, there should be one united medical service in Canada, and that the medical care of all soldiers, invalided or otherwise, should be placed directly under the Surgeon-General, to be known as Surgeon-General of Canada, with direct responsibility to the Honourable the Minister of Militia, and with a seat on the Military Council; further, that the Surgeon-General of Canada should absorb the duties of Director of Medical Services, Invalids, and be chief medical officer of the Military Hospitals Commission, and be *ex-officio* a member of the Military Hospitals Commission and of the Executive. Further, that Surgeon-General Fotheringham, who has been recalled from overseas to become Director of Medical Services, Invalids, should be appointed forthwith as Acting Surgeon-General of Canada; further, that the views expressed by Surgeon-General Fotheringham in his evidence before the Parliamentary Committee on Returned Soldiers at its sitting on June 12th, 1917, are generally endorsed."

The War

THE following letter was received on July 3rd, from LIEUTENANT-COLONEL G. E. ARMSTRONG, C.A.M.C.

To the members of the Canadian Medical Association.

Asked by your President to contribute something to the meeting of the Canadian Medical Association, I cast about for a fitting subject. Some one of the many phases of war surgery would seem indicated. My time is wholly taken up, for the most part, in visiting the Canadian hospitals in England that are engaged in active treatment, and also the convalescent hospitals. There is certainly here much of interest: war surgery has an interesting side; and one might write many histories of most unusual injuries and many of most wonderful escapes.

On the whole it is depressing to go through our hospitals day after day and week after week, observing the thousands of wounded, many of them sadly mutilated. It brings home to one the cruelties of war, and when at leisure one thinks of the homes of these men—of their dependents, their father, mother, brothers, wives and children, sisters and lovers, and a feeling of horror comes over one, at least over the writer. How can such things be at this period of what we were once proud to call our twentieth century civilization? It is the old story of "Man's inhumanity to man." And yet there is a glory—a savage glory, if you will—in meeting the enemy in the struggle for supremacy.

May I take this opportunity of saying that never in the history of warfare has there been greater bravery, resourcefulness, endurance, and perfection of every detail of attack, than is presented by our Canadian soldiers on the Western front?

It is too soon to prepare any statistical table. The case reports are not yet available. I have had a clerk at work for nearly six weeks, trying to get facts together for a paper, but it is hopeless.

The great question of our Canadian hospitals in England is the treatment of the results of infection received on a battlefield, located, for the most part, in an agricultural country that has been tilled and fertilized for centuries, and in which the rainfall is considerable and the sunshine less than obtains in Canada.

Shock and hæmorrhage are more frequently met with in France than in England, although even in England we occasionally see very serious secondary hæmorrhages, requiring for their control ligature of important vessels. Another fact impressing itself on all of us is the importance of early treatment. The evolution of abdominal surgery has taught all abdominal surgeons the necessity of meeting infection of the peritoneum promptly: quick and decisive action is as urgently demanded in infection wounds of the soft tissues and of the bones and joints.

A few men, including our friend—DePage, at LaPanne—will show extraordinarily good results: the reason is that besides being an exceptionally good surgeon of wide experience in war surgery, he has, because of his location, received his cases early, often during the first six hours after receipt of wounds, has had a carefully trained lot of young men to help him, and has been permitted to retain personal control and supervision of the patients as long as needed.

I wish to emphasize my point, which perhaps I have not made quite clear, that wounds treated during the first six or eight hours and kept continually under treatment, without the break unavoidably associated with transportation, do better than those treated during the second twelve hours and then transported some distance to a Base hospital, a change often requiring, under war conditions, twelve to twenty-four, or sometimes thirty-six hours.

Among the extraordinary conditions observed recently has been "A lesion simulating aneurysmal varix".

At home, before coming overseas, and again since taking up my work in England, I have met a number of cases of traumatic aneurysm. Several of them had been operated upon successfully by the surgeons attached to our hospitals and by myself. We usually recognize three varieties of traumatic aneurysm—the false aneurysm—aneurysmal varix, and arteriovenous aneurysms. I recently had an opportunity of uncovering a lesion that, so far as I know, has not been described, and which simulated very closely the condition known as aneurysmal varix. The patient was a private whom I found under treatment for a fracture of the leg, in a convalescent hospital. Union had taken place, but the leg was cold, the foot cold and somewhat swollen, and there was an unusual degree of disability. On examination I found that in addition to the fracture of the leg he had sustained a nasty shrapnel wound of the right thigh about the middle. There was present a long scar over the course of the femoral artery in the middle of the

thigh, indicating that an incision had been made by a surgeon, but for what reason the patient did not know. At the upper end of the scar, just below Poupart's ligament, the pulsation of the artery was visible. On palpation there was felt a very distinct thrill. On auscultation a loud churning bruit was heard. There could not be any doubt that we had before us a definite aneurysmal varix. Along the course of the vessels in the middle of the thigh there was nothing abnormal to be seen, heard, or felt. At the lower end of the inner side of the thigh, however, just over Hunter's canal, there was a distinct thrill felt and a definite bruit heard on auscultation.

It was difficult to account for this lower condition, especially as the middle of the thigh was silent. The patient was transferred to an active treatment hospital and through the courtesy of the surgeon-in-chief, our mutual friend, Lieutenant-Colonel Hutchison, I uncovered the site of the upper lesion. After exposing the superficial femoral artery just below the giving-off of the profunda branch, I came upon the point where the femoral artery and vein were united. The finger placed upon the artery at this point felt the bruit, and the churning sound may be described as boisterous. Crile clamps were placed upon the vessels above and below and I proceeded to separate the vessels which, to our surprise, was accomplished without any hæmorrhage: there was no communication between them. As soon as they were separated the bruit disappeared altogether. The bruit remained over Hunter's canal, however, as distinct as before. This area was accordingly uncovered, and a point found where the artery and vein were intimately adherent by scar tissue, and over this point the finger felt the loud churning swishing bruit. The vessels at this point were carefully separated by blunt dissection: there was no bleeding, and no communication between the artery and the vein. As soon as the separation was completed the thrill disappeared. A layer of fat was in each instance placed between the vessels with the object of preventing reunion of the vessels and the wound closed.

The symptoms of aneurysmal varix in this case were clearly due to the close adhesion of the artery and vein by scar tissue. I do not so far see how the two conditions could have been differentiated before exposure, unless possibly, the multiplicity of areas might have aroused suspicion. At each point, before the vessels were separated, the artery was dilated. I estimate that its capacity at the point of adhesion was increased 25 or 30 per cent. That the bruit was not due altogether to the local fusiform dilation is

proved by the fact that the bruit disappeared as soon as the artery was separated from the vein. It is worthy of note that after the separation the artery contracted to normal size under observation, in, say, five minutes. One is, therefore, compelled to believe that the bruit was due to the adhesion of the wall of the artery to that of the vein. I can only suggest that the bruit was in part, at least, due to the adhesion interfering with the movement of the arterial wall at the point of junction with the vein, contributed to possibly by the associated fusiform dilatation of the artery, but not altogether to the latter, because the bruit disappeared immediately the vessels were separated, while the fusiform dilatation remained. The prognosis remains to be determined.

Will you please receive this short communication as an evidence of my desire to contribute to the success of the 1917 meeting of the Canadian Medical Association.

G. E. ARMSTRONG,

Lieutenant-Colonel, C.A.M.C.

Book Reviews

THE PRACTICAL MEDICINE SERIES; COMPRISING THE VOLUMES ON THE YEAR'S PROGRESS IN MEDICINE AND SURGERY. Under the general editorial charge of CHARLES L. MIX, A.M., M.D., professor of physical diagnosis in the Northwestern University Medical School. Vol. X, NERVOUS AND MENTAL DISEASES. Edited by HUGH T. PATRICK, M.D., professor of neurology in the Chicago Polyclinic, and others. Series, 1916. Publishers: The Year Book Publishers, 327 S. LaSalle Street, Chicago. Price $1.35. Price of the series of ten volumes, $10.00.

This volume of the "Practical Medicine Series," edited by Patrick and Bassoe, of Chicago, keeps up the high standard to which we have become accustomed in the neurological volumes. The condensation of the very large number of original articles reviewed by the authors is very well done, and particularly there is to be noticed the fact that the book is written in decent English. The subject matter includes, general symptoms, the neuroses, the cerebro-spinal fluid, diseases of the meninges, the syphilitic diseases of the nervous system (in a chapter by itself), diseases of

the brain, of the spinal cord, and of the peripheral nerves. There are also some forty pages given to psychiatry; also a few good photographs illustrating both clinical and pathological subjects. The volume contains much more than a mere compilation of the work of a large number of neurologists; there are numerous notes contributed by the editors from their own experience. It would be quite impossible to single out particular subjects for commendation, but one notices particularly a good review of the treatment of cerebro-spinal meningitis, notably an examination of the causes of failure. No less than twenty-five pages are given to the syphilitic diseases of the nervous system; these commensurate with the importance of the subject. The intra-cranial injection of salvarsanized serum is reviewed, the results of this method appear to be favourable and the operation is shown not to be dangerous, 102 cases having been treated in this way without ill results in any case.

There are a certain number of reviews of neurological work concerned with the war, such as the occurrence of late abscess after gunshot wounds of the brain, also wounds and injuries of the spinal cord. Poliomyelitis is given sufficient attention. In particular there is a good review of Gordon Holmes' Goulstonian lectures on "War injuries of the Spine"; a most excellent piece of work. Taken as a whole the volume is warmly to be recommended.

THE JOURNAL OF UROLOGY (Experimental, Medical, Surgical), Edited by HUGH HAMPTON YOUNG. Vol. I. Published bi-monthly by Williams & Wilkins Company, Baltimore. Price $5.00.

Another medical journal added to the already overcrowded list. We frequently hear the remark, "Too many medical journals." It is doubtless true. But there is still plenty of room for good publications, and this is especially so in the department of urological medicine. Urology has made great advances in the last decade and the need of a *Journal of Urology* has been very apparent.

Published along broad lines; the medicine, surgery, chemistry, embryology, bacteriology and pathology of the urinary tract, will be discussed. The editorial personnel is composed of heads of departments from several leading hospitals. The articles in the first issue are of considerable variety and all of high order, and a successful future for the *Journal of Urology* is predicted.

Books Received

THE following books have been received and the courtesy of the publishers in sending them is duly acknowledged. Reviews will be made from time to time of books selected from those which have been received.

HANDBOOK OF SUGGESTIVE THERAPEUTICS, APPLIED HYPNOTISM PSYCHIC SCIENCE: A Manual of Practical Psychotherapy, designed especially for the Practitioner of Medicine, Surgery, and Dentistry. By HENRY S. MUNRO, M.D., Omaha, Nebraska. Fourth edition, revised and enlarged. Publishers: C. V. Mosby Company, 1917. Price, $5.00.

CANCER: ITS CAUSE AND TREATMENT. By L. DUNCAN BULKLEY. A.M., M.D., senior physician to the New York Skin and Cancer Hospital. Vol. II, 282 pages. Price $1.50. Publishers: Paul B. Hoeber, New York, 1917.

THE INTERNAL SECRETIONS: THEIR PHYSIOLOGY AND APPLICATION TO PATHOLOGY. By E. GLEY, M.D., member of the Academy of Medicine of Paris. Translated from the French and edited by MAURICE FISHBERG, M.D., clinical professor of medicine, New York University and Bellevue Hospital Medical College. 231 pages. Price $2.00. Publishers: Paul B. Hoeber, New York, 1917.

ACUTE APPENDICITIS. PRACTICAL POINTS FROM A TWENTY-FIVE YEARS' EXPERIENCE. By C. HAMILTON WHITEFORD, M.R.C.S., L.R.C.P., late specialist in surgery, Military Hospital, Devonport. 68 pages. Price 4/– net. Publishers: Harrison & Sons, 43 Pall Mall, London, S.W., 1917.

PULMONARY TUBERCULOSIS: ITS DIAGNOSIS, PREVENTION, AND TREATMENT. By W. M. CROFTON, M.D., lecturer in special pathology, University College, Dublin. 119 pages with 20 illustrations. Price 6/– net. Publishers: J. & A. Churchill, 7 Great Marlborough Street, London, 1917.

THE CAUSATION OF SEX IN MAN. A new Theory of Sex Based on Clinical Materials. By E. RUMLEY DAWSON, L.R.C.P., M.R.C.S., late member of the council of the Obstetrical Society of London. Second edition. 219 pages with 22 illustrations. Price 7/6 net. Publishers: H. K. Lewis & Co., 136 Gower Street, London, W.C., 1917.

INTERNATIONAL CLINICS. A QUARTERLY OF ILLUSTRATED CLINICAL LECTURES AND ESPECIALLY PREPARED ORIGINAL ARTICLES ON TREATMENT, MEDICINE, SURGERY, NEUROLOGY, PÆDIATRICS, OBSTETRICS, GYNÆCOLOGY, ORTHOPÆDICS, PATHOLOGY, DERMATOLOGY, OPHTHALMOLOGY, OTOLOGY, RHINOLOGY, LARYNGOLOGY, HYGIENE, and other topics of interest to the students and practitioners. Edited by H. R. M. LANDIS, M.D., and others. Vol. II. Twenty-seventh series, 1917. Publishers: J. B. Lippincott Company, Philadelphia, London and Montreal.

DISEASES OF CHILDREN. A Manual for Students and Practitioners. By GEORGE M. TUTTLE, M.D., clinical professor of Pediatrics, Washington University Medical School; and PHELPS G. HURFORD, M.D., Pediatrician, St. Louis Lutheran Hospital. Third edition, thoroughly revised and enlarged. 584 pages with illustrations. Publishers: Lea & Febiger, Philadelphia and New York, 1917.

EYE, EAR, NOSE AND THROAT. A Manual for Students and Practitioners. By HOWARD CHARLES BALLENGER, M.D., professor of oto-laryngology in the Chicago Eye, Ear, Nose and Throat College; and A. G. WIPPERN, M.D., attending occulist and aurist to St. Elizabeth's Hospital, Chicago. New second edition, thoroughly revised. 503 pages, illustrated with 180 engravings. Publishers: Lea & Febiger, Philadelphia and New York, 1917.

A PRACTICAL TREATISE ON FRACTURES AND DISLOCATIONS. By LEWIS A. STIMSON, B.A., M.D., LL.D., professor of surgery in Cornell University Medical College, New York. Eighth edition, revised and enlarged. 933 pages with 475 illustrations. Publishers: Lea & Febiger, New York and Philadelphia, 1917.

Obituary

CAPTAIN A. P. CHALMERS, C.A.M.C.

CAPTAIN ADAM PEDEN CHAMBERS, who died on May 16th, last, at St. Lucia, British West Indies, was born in Perth County in the province of Ontario in 1865. He was educated at Toronto and graduated from Trinity Medical College in the year 1892. He practised for a time at Oil Springs and at the time the war broke out was in practice in Toronto. He at once volunteered for active service and was attached to the medical staff at Camp Borden, subsequently going to St. Lucia. His death was the result of injuries sustained in an accident. Dr. Chalmers leaves a widow and two children.

DR. WILLIAM M. CALDWELL died July 3rd, at St. John, New Brunswick, in the seventy-second year of his age. Dr. Caldwell, who was born in King's County in the province of New Brunswick, of English parentage, graduated from the Medical School of Harvard University in 1867, and practised at Lancaster Heights for some time. Later he went to Newcastle Bridge, Queen's County.

DR. WELLINGTON C. JEFFERS, who died at Lindsay, Ontario, on July 17th, after a short illness, was widely known throughout that district. Born in Dundas, Ontario, in 1864, a younger son of the late Reverend Wellington Jeffers, of Belleville, Ontario, he was educated at the old Grammar School, Toronto, and entered the medical faculty of Victoria University, graduating with honours in 1867. Dr. Jeffers went into practice in association with Dr. Rolph at Toronto. Subsequently, he went to the United States where he practised for some years, but returned to Canada and took up practice at Oakwood and Lindsay. A widow, two sons, and four daughters survive him.

DR. EDWARD S. BLANCHARD, medical superintendent of the Falconwood hospital for the insane, died at Charlottetown, Prince Edward Island, at the age of sixty-eight years. Dr. Blanchard was born at Windsor, Nova Scotia. He leaves a widow, one daughter, and a son who is at present on active service.

DR. THOMAS MCQUAID, who died in May last at Sault Ste. Marie, was born in 1877 and graduated from the Western University in 1906.

DR. AIME ROMULUS LAROCHELLE died on June 24th, at Sorel, where he had been in practice since 1908. He graduated from Laval University, Quebec, in 1903.

News

ONTARIO

THE sum of $10,000 has been given to the Englehart Hospital at Petrolia, by Mr. J. S. Englehart, chairman of the Northern Railway Commission, for the purpose of adding a maternity wing to the hospital. The hospital itself was also the gift of Mr. Englehart and was formerly his private residence.

A DEPUTATION recently waited on the Hon. W. D. McPherson, provincial secretary, with the request that a Royal Commission be appointed by the Ontario Government to enquire into and report on the best means of dealing with the problem of the feeble-minded in the province. The attention of the Provincial Secretary was drawn to the fact that resolutions in favour of the appointment of such a commission had been passed by the Anglican Synod and the District Methodist Conference. Among the members of the deputation were Dr. P. H. Bryce, of Ottawa; Dr. F. J. Conboy, of Toronto; Canon Plumptre and Father Minehan.

THE following cases of infectious disease were reported in Toronto during June: diphtheria, 100; scarlet fever, 58; typhoid fever, 4; measles, 203; cerebro-spinal fever, 2; infantile paralysis, 2; erysipelas, 5; tuberculosis, 75; chicken-pox, 62; whooping cough, 44; mumps, 37.

QUEBEC

AT a meeting of the Société Médicale de Montréal on May 22nd, last, a resolution was passed to the effect that regular medical inspection of children should be established in all schools, urban and

rural, throughout the province of Quebec. Attention was drawn also to the insufficiency of the salaries paid to physicians entrusted with the work of school inspection.

MEDICAL COLLEGES

Laval University

THE following candidates have successfully passed the examinations in medicine at Laval University, Montreal: I. E. Bachand, Henri Baril, R. Beaudoin, A. Bellerose, B. Bibeau, D. Bisson, Arthur Bourdon, Ernest Brunet, P. A. Charette, Amédé Demers, C. E. Dubuc, Henri Fortier, Arthur Gagné, L. Z. Gauthier, Roch Hébert, Lucien Helie, Oscar Laberge, J. G. Langis, C. A. Langlois, J. P. Lapointe, J. B. Mandeville, Roméo Pepin, Emile Phaneuf, L. R. Robillard, L. Robert, R. Rolland, J. C. St. Pierre, A. Therien.

ARMY MEDICAL SERVICES

SIR EUGENE FISET, D.S.O., deputy minister of militia, has been decorated with the Cross of the Legion of Honour by the French Government. The investiture was made at Montreal by M. Bonin, the French Consul, on July 14th.

THE new wing of the Ontario Military Hospital at Orpington, Kent, was opened on July 5th, by the Right Honourable Walter Long, Secretary of State for the Colonies. The hospital now has a capacity of 2,800 beds.

THE Military Cross has been awarded by His Majesty the King to the following members of the Canadian Army Medical Corps:

CAPTAIN HUGH HART, "who showed the utmost gallantry and courage in attending to the wounded while under heavy fire."

CAPTAIN DOUGLAS BALLANTYNE KENNEDY, who "directed the work of stretcher-bearers for forty-eight hours without rest, while under heavy enemy fire".

CAPTAIN RONALD HUGH MACDONALD, who "went out in view of the enemy, who were shelling a disabled aeroplane, and extracted a wounded airman".

CAPTAIN ROBERT JAMES MANSON, who "at great personal risk stopped alone and dressed nine wounded men".

CAPTAIN ARTHUR CHESTER ARMSTRONG, C.A.M.C. "For tending wounded under heavy fire."

THE *Croix de Guerre* has been awarded by the French Government to LIEUTENANT W. E. ORD, R.A.M.C.

Canadian Literature

ORIGINAL CONTRIBUTIONS

The Canadian Practitioner and Review, April, 1917:

Hydatid of the lung—Report of two cases	F. A. Clarkson.
The radium treatment of malignant disease of the lip and skin . . .	H. B. Aikins.

The Canadian Practitioner and Review, May, 1917:

Notes on the differential diagnosis of pulmonary tuberculosis .	J. H. Elliott and C. Sheard.
Edward Jenner, 1749–1823. Remarks made on presenting a portrait of Jenner to the Academy of Medicine, Toronto, March 6th, 1917 . . .	J. Ferguson.
Presentation of some rare books and a historic cane to the Academy of Medicine, Toronto, April 3rd, 1917 .	J. Ferguson.

Dominion Medical Monthly, April, 1917:

Some radium treatments	G. Elliott.

Dominion Medical Monthly, May, 1917:

The radium treatment of malignant disease of the lip and skin . . .	W. H. B. Aikins.
The synergism of lactucarium and ethyl carbamate: a pharmaceutical and clinical study	P. Bartholow.

La Clinique, June, 1917:

Appendicite au cours de la grossesse. .	A. P. Heineck.
Comment prévenir l'infection puerperale.	G. Juilly.

Medical Societies

CANADIAN PUBLIC HEALTH ASSOCIATION

THE Sixth Annual Congress of the Canadian Public Health Association is to be held in Ottawa on September 27th and 28th next. The Canadian Association for the Prevention of Tuberculosis will meet at the same place on September 26th. Furthermore, the Canadian Conference on Charities and Correction meets in Ottawa also, during the early part of the same week.

Among the subjects of particular interest to be discussed at the meeting of the Canadian Public Health Association is that of National Health Insurance which will be discussed at length. The symposium on this subject, in which well-known authorities will participate, will take place on the first afternoon.

Another matter that will come up for discussion is venereal diseases in their military and civilian public health aspects. Such questions as infant welfare and child hygiene will also receive attention. A separate section meeting of laboratory workers is also being arranged.

Special railway rates from all points east of Fort William have been obtained from the Eastern Canadian Passenger Association, fare and one third, plus 25 cents on the certificate plan.

Those who wish to contribute papers should submit titles, stating the length of time required to read the paper, to the General Secretary not later than August 15th next.

COLLEGE OF PHYSICIANS AND SURGEONS OF ONTARIO

THE annual meeting of the Council of the College of Physicians and Surgeons of Ontario was held in the last week of June, 1917.

The officers elected were: president, Dr. W. E. Crain, Crysler, Ontario; vice-president, Dr. R. Ferguson, London, Ontario; registrar-treasurer, Dr. H. Wilberforce Aikins, Toronto; solicitor, H. S. Osler, Esq., K.C., Toronto; auditor, Mr. J. F. Lawson, Toronto; stenographer, Mr. G. Angus, Toronto; official prosecutor, Mr. J. Fyfe, Toronto.

Dr. Edmund E. King, in his address, gave a very interesting and instructive resumé of all matters affecting the College, with which the executive committee had had to deal during the Council recess.

The Honourable Dr. Thornton, Minister of Education for the Province of Manitoba, and a member of the Canada Medical Council, addressed the Council at length, upon questions in which both Councils are mutually interested. Dr. Spankie read the report of the representatives of this College on the Canada Medical Council dealing with the same matters.

The Council passed a resolution, requesting the Dominion Government to take such steps as may be necessary to prevent or prohibit the sale of all patent or proprietary medicines, containing alcoholic content in excess of 2½ per cent.

A committee was appointed formally to impress upon the Dominion Government "the importance and the alarming menace to the public from the serious prevalence of venereal diseases" in the community.

The views of the Council, touching upon Canada-wide qualifying requirements, were expressed in the following resolution: "This Council is of the opinion, that there should be only one qualifying examination in the Dominion."

Under resolution, a special committee was appointed to give effect to the substance of the following motion: "That for military purposes, a census of the medical profession of Canada be taken, and that a card should be sent to each practitioner of medicine in Ontario, requesting him to fill out and return the same to the registrar of the College. The information thus obtained to be compiled and placed at the disposal of the Department of Militia and Defence."

The Council adopted the recommendation of the education committee that the representatives of this Council on the Canada Medical Council be instructed to enter into negotiations with that body, looking to adoption of the views of the Canada Medical Council as embodied in the resolution passed by it in June, 1917, viz: "That a special committee be appointed to enter into negotiations with the Provincial Councils for coöperation in conducting examinations with a view to the adoption of the Dominion Examinations as the single portal of qualification in the Dominion of Canada."

The Council adopted a list of Medical Colleges in the United States, whose graduates, subject to stated limitations, would be

permitted to become candidates for the final qualifying examinations of the College. The following is an extract from the regulations:

"6. Students graduating subsequent to July 1st, 1916, from "recognized" medical colleges in any of the United States shall submit a certificate from that State Board of Licensure that the candidate is fully qualified for admission to the examination of that State Board. Certificates will be accepted from State Boards, (1) which accept similar certificates from this Council and (2) whose standards are equivalent to those of this Council.

"7. The following schools in the United States are "recognized": University of California College of Medicine, Berkley, California; Leland Stanford Junior University School, San Francisco, California; Yale University School of Medicine, New Haven, Connecticut; North Western University School, Chicago, Illinois; Rush Medical College, Chicago, Illinois; Indiana University School of Medicine, Indianapolis, Indiana; Johns Hopkins University, Baltimore, Maryland; Harvard University Medical School, Boston, Massachusetts; University of Michigan Medical School, Ann Arbor, Michigan; Washington University Medical School, St. Louis, Missouri; University of Minnesota Medical School, Minneapolis, Minnesota; University of Nebraska College of Medicine, Lincoln, Nebraska; Columbia University College of Physicians, and Surgeons, New York; Cornell University Medical College, New York; Syracuse University College of Medicine, Syracuse, New York; Ohio State University College of Medicine, Columbia, Ohio; Western Reserve University School of Medicine, Cleveland, Ohio; Jefferson Medical College, Philadelphia, Pennsylvania; University of Pennsylvania, Philadelphia, Pennsylvania; University of Pittsburgh School of Medicine, Pittsburgh, Pennsylvania."

NEW BRUNSWICK MEDICAL SOCIETY

THE thirty-seventh annual meeting of the New Brunswick Medical Society was held in St. John on July 17th, 1917, Dr. S. C. Murray, Albert, Albert County, the retiring president, presided.

The reports of the officers were submitted. The officers for the ensuing year were then elected. They are: president, F. H. Wetmore, M.D., Hampton; 1st vice-president, G. G. Melvin, M.D., St. John; 2nd vice-president, J. H. Allingham, M.D., Fairville; treasurer, J. T. Dalton, M.D., St. John; recording secretary, S. H. McDonald,

M.D., St. John; corresponding secretary, A. E. Macaulay, M.D., St. John; trustees, D. R. Moore, M.D., Stanley; J. B. Gilchrist, M.D., Norton; L. M. Curren, M.D., St. John. Five representatives to the Council of Physicians and Surgeons of New Brunswick were elected by the society. They were Drs. L. M. Curren, A. F. Emery, G. A. B. Addy, W. W. White, and G. R. J. Crawford, of St. John.

MEDICAL SOCIETY OF NOVA SCOTIA

THE Medical Society of Nova Scotia held its sixty-fourth annual meeting on July 4th and 5th, under the presidency of Professor Fraser Harris, of Dalhousie University, Halifax. On the invitation of President MacKenzie, the meetings were held in the Carlton Street building.

At the afternoon session of the first day there was a joint meeting with the Association of Medical Health Officers of Nova Scotia.

The following were the papers read: "Observations on some cardiac conditions," by Dr. Birt, Halifax; "A brief outline of the causes and remedies of increasingly common degenerative diseases," by Dr. W. B. Moore, Kentville; "Amputations," by Dr. Chisholm, Halifax; "Renal tuberculosis," by Dr. D. W. MacKenzie, Montreal; "Orthopædic surgery in war," by Lieutenant Colonel MacKenzie Forbes, A.M.C., C.E.F., Montreal; "The military medical service of yesterday and of to-day," by Lieutenant-Colonel F. MacKelvie Bell, A.D.M.S., 6th Military District, Halifax.

The President's address was entitled: "From the vague to the concrete in science and medicine."

On Tuesday morning, July 5th, there was a clinical meeting at the Victoria General Hospital when cases of medical and surgical interest were shown by the following: Doctors H. K. Macdonald, J. G. Macdougall, Weatherbe, MacLennan, Mäder, Murphy and M. A. B. Smith. A case of cure of alcoholism by hypnotic suggestion was demonstrated by Major Cutten (President of Acadia College).

On Wednesday, July 4th, the Halifax members entertained the non-city members to lunch; there were only two toasts: "The King," by Dr. Kirkpatrick, chairman of the entertainment committee; and "Our guests," by Dr. Fraser Harris, replied to by Colonel Forbes. On Thursday afternoon there was an excursion by

water to visit the beautiful North West Arm and the great ocean terminals now in course of erection. In the evening, members were present at a band concert at the Wagwoltic Club.

The place of next year's meeting was decided on as Liverpool; the president, Dr. J. W. Smith, of Liverpool; first vice-president, Dr. A. L. G. Forbes, of Lunenburg,; second vice-president, Dr. B. Francis, Sydney Mines; Dr. J. R. Corston was reëlected secretary-treasurer. The representatives to the Executive Council of the Canadian Medical Association elected were: Doctors J. W. Smith, Fraser Harris, and J. G. Macdougall.

The representatives to the Provincial Medical Board of Nova Scotia elected were: Doctors Forbes, Lunenburg; Maclean, North Sydney; Moore, Kentville; T. H. Macdonald, Meteghan; J. G. Macdougall, Halifax, and Professor Nicholls, Halifax. The general impression was that the Halifax meeting was both pleasant and profitable.

MEDICAL OFFICERS OF HEALTH OF NOVA SCOTIA

THE third annual meeting of the Association of Medical Officers of Health of Nova Scotia met in the House of Assembly in Halifax, on July 3rd, under the presidency of Dr. George DeWitt, of Wolfville. The congress was welcomed by the Premier of Nova Scotia and addressed by His Honour the Lieutenant Governor. Both speakers expressed themselves in sympathy with the efforts of the medical profession to conserve the health of the people at large.

Dr. W. H. Hattie read an important paper on the "Legislative aspect of venereal diseases." The Association later passed a resolution requesting the Federal government to enact such legislation as will control the spread of venereal diseases especially to be feared on the return of the troops from overseas service. It was pointed out that both the Imperial and the Australian Parliaments had already enacted legislation directed to that end. Dr. Philip Ring read a paper on the "Sanitation of factories", as an outcome of which the Provincial government was requested to take steps to see that all industrial establishments were provided with modern sanitation The afternoon session was occupied with a symposium on "Poliomyelitis anterior", Dr. M. D. Morrison contributing his experiences of an epidemic; Dr. Clarence Miller a paper on "Diagnosis", and Professor Nicholls on the "Epidemiological aspects of the disease".

The following papers were also given: "Some military experiences of a former Medical Health Officer," by Major C. H. Morris, D.A.D.M.S., 6th Military Division; "The medical supervision of children," by Dr. H. A. Payzant, of Dartmouth; and, "Milk inspection and the inspector's duties," by Dr. G. Townsend, Department of Agriculture, New Glasgow.

At the evening session the president gave his address in which many matters of importance to the public health were discussed with much seriousness. Dr. DeWitt laid especial emphasis on the necessity of regarding venereal diseases as notifiable. Dr. J. J. Cameron, medical health officer of Antigonish, gave a thoughtful and suggestive paper on "Observations on the conservation of life".

Professor Fraser Harris, Dalhousie University, opened a discussion on the "Medical aspects of the tobacco habit". Most of the paper was a technical account of the physiological, pharmacological, and chemical effects of nicotine. Dr. Harris made it very clear that age and idiosyncracy were most important facts in regard to the effects of smoking. He discussed the modern theory of tolerance by the formation of a hepatic anti-body, and explained the physiological differences between small and large doses of nicotine, and between the occasional and the habitual use of tobacco. He by no means condemned the moderate use of tobacco on the part of adult men.

PRINCE EDWARD ISLAND MEDICAL SOCIETY

THE annual meeting of the Prince Edward Island Medical Society was held in Summerside on Wednesday, July 11th, the sessions being held in the council chamber.

In the absence of the president, Dr. R. J. McDonald, of St. Peter's, the chair was occupied by Dr. Dewar, vice-president.

The members present were: Drs. A. McNeil, E. T. Tanton, J. Jardine, E. E. Sinclair, J. F. McNeill, of Summerside; McBride, of Tignish; Champion, of Tyne Valley; A. A. McDonald, of Souris; F. Jardine, of Kensington; McGuigan, of Emerald; Dewar, of Warburton; McMillan, Yeo, Conroy, Carruthers, of Charlottetown; Murchison, of Clyde River. Dr. J. Clarence Webster of Chicago University, and formerly of McGill University, was also present as a guest of the Society.

The reports of the different officers and committees were presented.

The election of officers resulted as follows: president, Dr. E. T. Tanton, Summerside; vice-presidents, Dr. McBride, Tignish; Dr. Murchison, Clyde Valley; Dr. McIntyre, Montague; secretary, Dr. Yeo, Charlottetown (reëlected); treasurer, Dr. McMillan, Charlottetown (reëlected); executive committee, Dr. McGuigan, Dr. Sinclair, Dr. Sullivan; auditors, Drs. Carruthers and F. Jardine.

The following medical council was elected: Drs. Carruthers, Warburton; Conroy, McMillan, Yeo, Dewar, Jenkins.

A most useful orthopædic apparatus was demonstrated by the inventors, Messrs. Thomas White and John Cameron, of Charlottetown. This device is intended to aid in the correction of deformities and weaknesses in the limbs. Its working was fully demonstrated and very highly commended by all the doctors present. They all had experience with similar devices manufactured elsewhere, and the unanimous opinion expressed was that this was the most complete and satisfactory they had seen. They complimented the inventors and urged them to give the device more publicity as its use would be of great benefit in very many cases. The device is already in use by a number of local people, and it has proved a great success.

Instructive and valuable papers were read by Drs. Dewar and McMillan, Charlottetown, and Dr. Alex. McNeill, Summerside.

Dr. Webster gave an excellent paper on "Infections of the kidneys and bladder". This paper was considered one of the best ever given before the society, and was very highly commented upon by those in attendance. Dr. Webster, was elected an honorary member of the Society in recognition of his useful paper and interesting address, and was given a cordial vote of thanks.

After the conclusion of the business the members were taken in automobiles to Cape Borden, which they enjoyed very much.

EDMONTON ACADEMY OF MEDICINE

A COMBINED meeting of the Edmonton Academy of Medicine and the Edmonton Dental Society took place on June 27th, on which occasion a paper on public health problems was read by Dr. Irving Bell. Dr. Bell was of the opinion that too little attention was paid to such matters and believed that the solution of

these problems lay largely in education, and that as far as tuberculosis and venereal disease was concerned the best results would be obtained by a good workable public or social insurance bill. Dr. G. E. Hope suggested the establishment of a special provincial department by which all matters pertaining to public health should be directed. It was important, he thought, that the government should recognize the fact that every child brought up in the province should be given a liberal education, sound moral training, and such attention to its physical welfare as would bring it to maturity in possession of the fullest physical perfection possible in that child.

An interesting discussion followed the reading of these papers and the following resolution was passed unanimously:

"That in the opinion of this meeting we deem the matter of public health of the province of such pressing importance that immediate steps should be taken with the view of bringing such influence to bear upon the provincial government as will bring about the establishment of a department of public health, believing as we do, that only by the establishment of such a department can the urgent questions requiring attention be properly and adequately dealt with."

A committee was appointed to consider the question and the matter will be brought before the provincial government in the near future.

MONTREAL MEDICO-CHIRURGICAL SOCIETY

The eleventh annual meeting of the Society was held Friday evening March 7th, 1917, Dr. W. S. Morrow, president in the chair.

The programme for the evening consisted in an address by Professor J. J. R. Macleod of the Western Reserve University, Cleveland, Ohio, who took as his subject, "Physiology in the clinic." Professor Macleod divided his subject into two heads, that of the application of methods of experimental physiology and the application of methods of chemistry in physiology, and gave an extremely interesting discourse on the experimental physiological methods in the study of the heart's action, illustrated by charts and diagrams, and on the application of the newer methods of studying respiratory capacity and exchange.

The paper was discussed by Dr. Morrow, Professor Lloyd, Dr. Mason, Dr. Maude Abbott, Dr. Kaufmann, and Dr. Pennoyer. Professor Macleod replied.

Medical Societies

CANADIAN MEDICAL ASSOCIATION:—President—Dr. A. D. Blackader, Montreal. President-elect—Dr. James McKenty, Winnipeg. Secretary-treasurer—Dr. J. W. Scane, 836 University Street, Montreal.

ACADEMY OF MEDICINE, TORONTO:—President—Dr. D. J. Gibb Wishart. Secretary—Dr. J. H. Elliot, 11 Spadina Road. Treasurer—Dr. J. H. McConnell.

ALBERTA MEDICAL ASSOCIATION:—President—Dr. W. A. Lincoln, Calgary. Secretary-treasurer—Dr. D. G. Revell, University of Alberta, Edmonton South.
Annual Meeting, Calgary, 1917.

ASSOCIATION OF MEDICAL OFFICERS OF THE MILITIA:—President—Lt.-Colonel A. T. Shillington, A.M.C., Ottawa. Secretary—Captain T. H. Leggett, A.M.C., Ottawa.

ASSOCIATION OF MEDICAL OFFICERS OF NOVA SCOTIA—President—Dr. George E. DeWitt, Wolfville. Secretary—Dr. W. W. Hattie, Halifax.

BRANT COUNTY MEDICAL SOCIETY:—President—Dr. E. R. Secord, Brantford. Secretary—Dr. M. N. Faris.

BRITISH COLUMBIA MEDICAL ASSOCIATION:—President—Dr. J. Glen Campbell, Vancouver. Secretary—Dr. H. W. Riggs, Vancouver.

CALGARY MEDICAL SOCIETY:—President—Dr. J. L. Allen. Secretary—Dr. J. E. Aikenhead. Treasurer—Dr. W. Shipley.

CANADIAN ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS:—President—Hon. J. W. Daniel, M.D., St. John. Secretary—Dr. George D. Porter, Ottawa.
Annual meeting, Ottawa, September 26th, 1917.

CANADIAN HOSPITAL ASSOCIATION:—President—Dr. H. A. Boyce, Belleville. Secretary—Dr. J. M. E. Brown, Toronto.

CANADIAN PUBLIC HEALTH ASSOCIATION:—President—Dr. J. D. Pagé, Quebec. Secretary—Dr. J. G. Fitzgerald, University of Toronto.
Annual meeting, Ottawa, September 27th and 28th, 1917.

CENTRAL SOUTHERN ALBERTA MEDICAL SOCIETY:—President—Dr. J. S. Murray, Okotoks. Secretary-treasurer—Dr. G. E. Learmonth, High River.

COLCHESTER-HANTS MEDICAL SOCIETY:—President—Dr. J. W. T. Patton, Truro. Secretary—Dr. H. V. Kent, Truro.

DUFFERIN MEDICAL SOCIETY:—President—Dr. Rooney, Orangeville. Secretary—Dr. Smith, Shelburne.

EDMONTON ACADEMY OF MEDICINE:—President—Dr. C. U. Holmes. Secretary-treasurer—Dr. E. L. Garner. Library, 12 Credit Foncier Building.

ELGIN COUNTY MEDICAL ASSOCIATION:—President—Dr. G. A. Shannon, St. Thomas. Secretary-treasurer—Dr. W. F. Cornett, St. Thomas.

FRASER VALLEY MEDICAL SOCIETY:—President—Dr. DeWolfe Smith. Secretary—Dr. D. F. Carswell.

HALDIMAND COUNTY MEDICAL ASSOCIATION:—President—Dr. Hopkins, Dunnville. Secretary—Dr. Courley, Cayuga, Ont.